

94th Congress }
2d Session }

COMMITTEE PRINT

SOVIET OCEANS DEVELOPMENT

PREPARED AT THE REQUEST OF

HON. WARREN G. MAGNUSON, *Chairman*
COMMITTEE ON COMMERCE

AND

HON. ERNEST F. HOLLINGS, *Chairman*
NATIONAL OCEAN POLICY STUDY

FOR THE USE OF THE

COMMITTEE ON COMMERCE

AND

NATIONAL OCEAN POLICY STUDY

PURSUANT TO

S. RES. 222



OCTOBER 1976

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LETTER OF TRANSMITTAL

U.S. SENATE,
COMMITTEE ON COMMERCE,
December 10, 1976.

DEAR COLLEAGUE: We are pleased to forward another in a series of reports for use of the National Ocean Policy Study and the Senate on issues relating to ocean policy.

Soviet Oceans Development is the first attempt to analyze all aspects of Soviet ocean policy and put it together in one coherent volume. The study shows that during the past 20 years, the Soviet Union has made impressive gains in most areas of ocean activities, and in particular in fisheries, oceanography, the merchant marine, and the Soviet navy. Those gains were to a large extent the result of understanding the potential the oceans held for the benefit of the Soviet Union. From the outset, the Soviet Union developed its ocean policy with the aim of integrating the functions of the merchant marine, navy, distant water fishing fleet, and oceanographic research capabilities into an interlocking system. The Soviets conceive that each element of sea-power must interact, complement, and reinforce the other.

The United States may have no desire to copy Soviet policy structure or goals in the oceans. It is important that as a Nation, however, we are cognizant of the progress made in ocean capability by the Soviet Union, and, where appropriate, benefit by the lessons it may provide.

The study was conducted by the Congressional Research Service with the assistance of 13 outside consultants. We wish to emphasize that the conclusions which might be inferred from this report and which may prove to be controversial have neither been approved, disapproved, nor considered by the Senate Committee on Commerce or the National Ocean Policy Study.

WARREN G. MAGNUSON,
Chairman, Committee on Commerce.

ERNEST F. HOLLINGS,
Chairman, National Ocean Policy Study.

LETTER OF SUBMITTAL

THE LIBRARY OF CONGRESS,
CONGRESSIONAL RESEARCH SERVICE,
Washington, D.C., June 18, 1976.

HON. ERNEST F. HOLLINGS,
Chairman, National Ocean Policy Study, Senate Committee on Commerce, Washington, D.C.

DEAR MR. HOLLINGS: In response to your request, we are submitting a compendium on Soviet Oceans Development.

The compendium includes analyses of Soviet ocean policy; evolution of Soviet seapower; the development of the merchant marine; fisheries policy; scientific and technological developments in the oceans; and mineral exploitation. The final part of the study is focussed on comparative strengths and weaknesses of the ocean capabilities of the United States and the U.S.S.R., and on the issue of reorganization of U.S. ocean activities in the Federal Government.

The compendium includes articles from a number of outstanding U.S. and foreign scholars, civil servants from several Federal Government agencies, and specialists in ocean policy and Soviet affairs at the Congressional Research Service.

The study was co-edited by Dr. John Hardt, Senior Specialist in Soviet Economics and Dr. Herman Franssen, Analyst in Science and Technology, Ocean and Coastal Resources Project of the Congressional Research Service. Ronda Bresnick, Research Assistant in Soviet Economics assisted the editors. Assistance and insight was provided by Dr. James Curlin, Chief, Ocean and Coastal Resources Project, Congressional Research Service.

Each of the authors in this compendium expresses his own professional views. The views of the outside authors are not necessarily the views of Congressional Research Service. Likewise, the summary prepared by the National Oceans Policy Study Staff of the Senate Commerce Committee does not necessarily reflect the views of Congressional Research Service or the individual authors. The Highlight of Authors' Contributions prepared by Dr. Hardt attempts to reflect the divergent views of various authors. Ultimately each express their own views in their respective chapters.

We hope that this compendium will serve the needs of the National Ocean Policy Study as well as those of other committees and Members of Congress.

Sincerely,

NORMAN BECKMAN,
Acting Director,
Congressional Research Service.

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SUMMARY: SOVIET OCEAN DEVELOPMENT

(By the National Ocean Policy Study Staff)

Although Soviet Russia, unlike the United States, is a continental power which is not dependent on the oceans for economic and strategic purposes, the U.S.S.R. has developed an ocean capability since 1950 that now ranks it with the leading maritime nations of the world.

The Soviet Union is an insular nation which has the potential for being self sufficient in oil and raw materials. Most of its foreign trade is transacted with COMECON and Western Europe over land and air routes. Strategically, its military allies and its potential foes are located on the same contiguous Eurasian land mass. Russia is dependent on the sea only for its source of animal protein and has developed a significant distant water fishing fleet that is capable of fishing waters anywhere in the world.

The remarkable accomplishments of the Soviet Union in developing its military and commercial fleet has come about from a conscious policy and national commitment, made in the 1950's, to become a maritime power. The Soviets achievements during the ensuing 20 years are even more spectacular considering that after World War II its navy consisted primarily of a few battle-worn gunboats which had survived the war and a merchant navy made up primarily of "Victory" ships given to them by the United States under the lend-lease program.

The Soviet decision to develop its ocean capabilities was probably to a large extent based upon economic and national security goals as a calculated objective of challenging the Western industrial world in its ideological and economic influence over the developing nations of the Third World.

With an awareness that the industrial nations of the West were becoming increasingly dependent upon the developing nations of the Third World for fuel and raw materials, the Soviet Union in its quest for world influence saw an opportunity to challenge the prestige and influence of the West in the vulnerable and rapidly changing Third World. In recent years the Soviet Union has also become aware that the West—particularly after the Vietnam war and the Arab oil embargo—has become increasingly introspective in its foreign policy, and more cautious in dealing with confrontation. Thus, the Soviets demonstrated support of their allies in Angola by a modest show of naval power. Continued displays of naval presence such as this—showing the flag—is a calculated strategy to impress developing countries and bring them within the sphere of Soviet influence.

It has also become apparent to the Soviet Union that the oceans are a great source of wealth. Although the U.S.S.R. does not presently need the mineral resources of the ocean—aside from fish protein—for its economic strength and national security, it does seek to share in the international control of these resources. This is particularly

true with indications that the United States and other industrialized nations are looking to the oceans for supplies of critical metals and secure routes of maritime commerce to assure the delivery of fuels and imported raw materials.

The Soviet Union has structured the components of its ocean program to develop seapower based upon the integration of the military, fishing, commercial, and scientific functions in a multipurpose fleet.

From the outset, the Soviet Union developed its ocean policy with the aim of integrating the functions of its merchant fleet, navy, distant water fishing fleet, and oceanographic research capabilities into an interlocking system which is the U.S.S.R.'s seapower. The Soviets conceive that each element of seapower must interact, complement, and reinforce the other. Each element is designed with a sensitivity to the effect of the functioning of one element on the performance of the others. Thus, while the merchant navy is designed to carry a growing Soviet overseas trade it was also designed to serve as an auxiliary naval force during war, to gather intelligence and monitor ship movements while at sea and contribute in other ways to the Soviet military mission. The distant water fishing fleet, since it operates in the coastal waters of many nations worldwide, has the opportunity to observe Western fleet movements and military exercises and track missiles.

Soviet ocean policy is determined at the highest governing level of its Government.

The Soviet Communist Party dominates the politics of the U.S.S.R. Government. The monolithic governmental system of the Soviet Union enables it to coordinate its ocean policy in pursuit of the goals and commitments established by the Communist Party. This is in contrast with the pluralistic representative government of the United States and many of the Western countries which pursue simultaneously a number of societal goals which are often in competition and sometimes in conflict.

When reviewing the accomplishments of the Soviet Union relating to its well-coordinated ocean policy over the last 25 years, one must acknowledge the differences between the governmental philosophies of a free enterprise system of open government and the philosophies of a state-controlled system under the domination of a ruling political party. While this does not diminish the impressive gains made by the Soviet Union in marine affairs, it does not indicate that we should emulate them in goals and policy structure. It is important, however, that we be cognizant of the progress made in ocean capability by the Soviet Union, and where appropriate, benefit by the lessons it may provide.

NAVAL POWER

The Soviet Navy has developed a fleet capable of denying sea control and onshore power projection to the United States and its allies.

Following the Second World War, the United States was the dominant ocean power. Our Navy was capable of controlling the seas and projecting U.S. power ashore anywhere on the globe. It is necessary that the United States be capable of maintaining the transportation

of goods and materials to our allies and Armed Forces wherever they may be. In addition, our dependence on imported oil and critical materials requires that supply lines be maintained into the Continental United States as well. The Soviet Union has countered the naval power of the United States since the late 1950's and 1960's by constructing a fleet capable of disrupting supply lines essential to the United States. Tactically, it is easier to disrupt communications than to protect them and the type of naval fleet necessary to conduct these divergent military roles will be different. Thus the U.S. Navy has emphasized the role of the aircraft carrier and capital vessels to protect them, while the Soviets have structured its strike force around submarines and small, maneuverable, tactical vessels.

When comparing naval power, the comparison of a fleet designed to maintain and protect lines of communication and supply with a fleet designed for attack and disruption of communications is difficult. The current debate on our naval fleet which centers on a comparison between the number of ships, tonnage, and armament expenditures of the two superpowers will not provide answers to the question of how the United States is to respond to the Soviet challenge. It does not go to the heart of the problem: Can we control the sea lanes in areas of vital importance to the United States, and can we project power ashore in Western Europe and the Mediterranean as indicated by our foreign policy? What is required is an objective appraisal of the need for pursuing our foreign policy in terms of kinds of vessels, state of technology and deployment. Whatever the outcome of the debate on the future structure of the U.S. Navy to meet the Soviet challenge, we must consider the related impact of our military posture on other aspects of ocean policy, such as maritime transportation and marine science and technology.

MERCHANT MARINE

The Soviet merchant marine, which was one-twentieth the size of the U.S. merchant navy at the end of World War II, is now approximately equal in tonnage capacity to the United States 30 years later.

At the end of the Second World War the Soviet Union merchant fleet consisted largely of war-worn outmoded vessels. About 20 percent of the Russian fleet was made up of cargo carriers provided by the United States under the Lend-Lease Act. In contrast, the United States had assembled the largest merchant fleet in the world which, during the post-war period, carried more than two-thirds of the Nation's overseas trade. In the past 30 years, the United States has dropped from first place in tonnage to ninth place; while the Soviet Union has built its merchant marine capacity to the point that it approximately equaled ours in 1975. Only 5 percent of the U.S. overseas trade is currently carried by American flag vessels while the Soviet Union transports 60 percent of its own overseas trade in Soviet flag vessels.

The Soviet Union has managed to compete with the Western maritime nations by cutting shipping rates of their Government-owned merchant fleet to well below the minimum offered by the Western shipping companies. This has enabled the Soviet Union to enhance their contacts with the developing countries and reduce the Third World countries' dependence upon the Western shipping industry.

The Soviet merchant fleet is designed for both commercial and military cargo and is capable of serving areas which lack port facilities and cargo handling equipment.

The Soviet merchant fleet consists primarily of general cargo vessels that can handle virtually any type of cargo. In contrast, the Western maritime fleets, particularly the U.S. merchant marine, is made up of specialized ships for handling a specific type of cargo. By building its merchant fleet to handle general cargo, the Soviet Union has the capability of converting its merchant marine to military auxiliaries when necessary.

The current Soviet 5-year plan for the merchant fleet is designed to procure the largest roll-on/roll-off and seabee fleet in the world. These vessels are uniquely suited for transporting cargo to regions lacking port facilities and specialized cargo handling equipment. In addition, roll on/roll off and seabee cargo ships are highly adaptable for the transport of arms and materials to support onshore military operations.

U.S.-U.S.S.R. FISHING CAPABILITIES

The Soviet distant-water fishing fleet is among the most modern and efficient in the world.

During the past 25 years the Soviet fishing fleet has increased its catch at an average annual rate of approximately 18 percent. During the period 1950 through 1975 the annual harvest increased from 1.8 million tons to 9.6 million tons—one half of which is caught off the coast of other countries. From a net importer of fish until 1969, the U.S.S.R. has become a net exporter of fish with foreign sales approaching \$140 million in 1974.

In contrast, the U.S. catch has remained virtually unchanged during the same period—2.4 to 2.6 million tons—although American fish imports increased from 1.1 billion pounds in 1950 to 4.1 billion pounds in 1974. This resulted in a drain of \$1.5 billion in the 1974 balance of trade.

The impressive gains made by the Soviet fishing fleet are even more remarkable in light of the total destruction it suffered during the Second World War; yet by 1975 the Soviet Union had commissioned 4,400 high seas fishing vessels. The United States, on the other hand, had no serious losses of fishing vessels during the war, yet our fleet consisted of only 1,019 vessels over 100 tons in 1975, and with the exception of the tuna fleet, most of the U.S. fishing vessels are old, less efficient boats.

The Soviet Union considers fish as a major component of their nutritional program. As a consequence, the U.S.S.R. has exploited the coastal fisheries of other countries, including the United States. With 17 countries, including the United States, having either declared or implemented a 200-mile fishery jurisdiction, the Soviet distant water fishing fleet may find its activities significantly restricted in the future.

MARINE SCIENCE

While it is difficult to evaluate the quality of soviet oceanographic research, the U.S.S.R. has strengthened its marine science and technology programs by significantly increasing its scientific engineering manpower and research capability.

The management of ocean resources, design of advanced ships and naval hardware for the merchant marine and the navy, and the management of waste disposal in the ocean is based on a fundamental knowledge derived from sound ocean science and engineering. The United States has been the acknowledged leader in oceanographic research and training since World War II. The need for ocean science was recognized early by the U.S. Navy during the war and it received significant support through the military budget. The Soviet Union embarked on an ambitious program to expand its oceanographic research capabilities in the 1950's as a component of its broad ocean program to build its merchant fleet and distant water fishing fleet.

During the period 1964 to 1974, the Soviet Union increased the number of ocean scientists and technicians from between 1,500-2,000 to as high as 7,000-8,000. Notwithstanding the early lead of the United States in scientific and engineering manpower, it is acknowledged that the Soviet Union now has as many trained ocean scientists and probably more engineers and support staff than the United States.

In comparing the capabilities of the United States and Soviet oceanographic fleet, it can readily be seen that the overwhelming U.S. superiority of the 1950's and early 1960's has vanished and the Soviet Union now has 200 research vessels compared to 120 of the United States. Generally, the Soviet vessels are larger than ours which reflects the trend of the Soviets for building large laboratory facilities aboard their vessels while we prefer to maintain onshore laboratories.

Although the overall performance of the U.S. oceanographic establishment and that of the Soviet Union is still considered on par, the Soviets continue to increase spending for ocean research and engineering while the United States continues to shrink its oceanographic research budget from its peak in 1967. Should the ocean research and development budget continue to diminish it is possible that the Soviet Union could surpass us in ocean science and technology in the near future. The effects of this trend may ultimately be reflected in the combat capabilities of the Soviet Navy, in its ship design and construction, systems of resource management and utilization, and weather modification.

TECHNOLOGY TRANSFER

The Soviet Union has taken advantage of the opportunities to obtain U.S. and Western technology through the technology transfer and scientific exchange programs.

The United States is the undisputed leader in important areas of ocean technology related to offshore oil and gas development, deep seabed mining, submersible vehicles and certain types of advanced cargo vessel design. We have liberally pursued a policy of sharing our scientific and technological knowledge with the Soviet Union under various exchange programs. There are serious questions now raised whether this exchange has been quid pro quo. The Soviet Union has applied U.S. technology, either supplied directly or through purchase from other Western nations with which we have shared our technology, to develop an ocean capability that is competing both commercially and militarily with the United States.

MAJOR POINTS CONCERNING SOVIET OCEAN POLICY

(By the National Ocean Policy Study Staff)

OBJECTIVES OF SOVIET OCEAN POLICY

Soviet imports are minimal and as an insular nation the U.S.S.R. is not dependent on the sea for transportation of strategic materials and oil; however, it has chosen to challenge the United States and western industrialized nations in maritime commerce because of our vulnerability through dependence on imports of oil and other critical materials.

Soviet Union uses its naval presence as a means of wooing Third World nations into the Soviet Communist sphere, e.g., Angola, Somalia, et cetera.

The U.S.S.R. is aware of the economic importance of the oceans and although she does not need the resources of the sea—except fish as an animal protein—the Soviet Union wants to share in the control of ocean resources as a means of countering the economic strength of the West.

CHARACTERISTICS OF SOVIET OCEAN POLICY

Ocean policy is determined and administered in a coordinated manner from the highest level of the Communist Party—the Politburo.

Soviets consider all components of the marine fleet—merchant marine, fishing, oceanographic and military—as integral and interacting parts of overall seapower (one hand washes the other).

SOVIET NAVAL POWER

Post World War II the U.S. Naval Fleet was the most powerful armada ever assembled: In contrast, the Soviet Union had neither a significant military nor merchant fleet. Since that time the U.S.S.R. has continued to close the gap and has exceeded us in merchant tonnage while seriously challenging the U.S. Navy for supremacy of the seas.

Soviet Union has assembled a multipurpose fleet—oceanographic vessels and fishing vessels can conduct intelligence and surveillance missions and the merchant fleet can operate as an auxilliary naval force in time of war.

SOVIET MERCHANT MARINE

U.S.S.R. subsidizes its merchant marine so that it can offer cut rates to Third World countries in order to reduce the developing countries dependence on the western industrialized nations for maritime transportation.

The United States has declined from first place in merchant marine tonnage in 1945 to ninth place in 1975: In contrast, the Soviet

merchant navy was one-twentieth the size of ours in 1945 and was composed mostly of lend-lease vessels provided by us. Now the Soviet tonnage equals ours and as the U.S. merchant fleet continues to age and atrophy, the Soviet fleet is expanding with new vessels being commissioned rapidly.

While the Soviet Union carries 60 percent of its overseas trade on U.S.S.R. bottoms, the United States carries only 5 percent of its overseas trade on American bottoms. This results in favorable balance of trade conditions for the Soviet Union and large balance of trade deficits for the United States. Carrying such a low percentage of trade in U.S. flag vessels could subject the United States to foreign boycotts and freight discrimination.

SOVIET DISTANT WATER FISHING

Soviet Union is highly dependent upon distant water fisheries off the coast of other nations to supply its animal protein—much of the harvest is in U.S. coastal waters which will come within the 200-mile fisheries jurisdiction. Therefore, we will have the capacity to apply leverage to the U.S.S.R. for other concessions in return for the privilege to fish.

Soviet Union fish harvest increased almost fivefold between 1950 and 1974. During that period the U.S.S.R. has shifted from being an importer of fish to a net exporter. The United States continues to import more and more fish each year—much of it caught off our own shores and sold back to us.

Most of the Soviet fishing fleet was destroyed in World War II; however, since that time a modern and efficient distant water fishing fleet has been built which is capable of fishing virtually anywhere in the world. U.S.S.R. presently has 4,400 modern high seas vessels while the United States has 1,019 aging and obsolete fishing vessels. Only our Pacific tuna fleet compares favorably.

Soviet Union is developing its capabilities to harvest Arctic krill as a supplement to its protein supply. The United States has made minimal efforts toward developing a potential for exploiting this fishery. Although krill may never be needed as a domestic source of protein, its importance to protein-short developing nations indicates a need for developing appropriate harvesting technology.

MARINE SCIENCE

Soviet Union has emphasized scientific and engineering manpower training for oceanography since implementation of its accelerated ocean program in the 1950's.

Presently the U.S.S.R. and the United States are on par in scientific oceanographic manpower and the Soviet Union probably exceeds the United States in ocean engineering manpower and support staff. At the present rates of training the Soviet Union may overtake the United States in scientific manpower in the future.

Soviet Union has 200 research vessels with a total displacement of 320,000 tons, while the United States has 120 oceanographic vessels with a total displacement of 180,000 tons.

TRANSFER OF U.S. MARINE TECHNOLOGY TO THE SOVIET UNION

Soviet Union has purchased large amounts of U.S. technology directly from the United States and from Western countries which acquired the technology from us. Much of this technology was applied to the development of a multipurpose merchant marine, e.g. Seabee front loading cargo carriers which is in direct competition with American flag vessels.

Pursuit of the policy of détente has made it even easier for the Soviet Union to acquire our technology to use in competition with us.

POLICY-RELEVANT LESSONS FROM THE SOVIETS

American political system and form of government limits the application of the Soviet approach to the solution of our oceans problems.

Principal feature which needs emulation is the creation of a high-level policy body within the Executive Office of the President to establish and pursue a rational national ocean policy—this is analogous to the Politburo's function.

Reorganization of the executive agencies is indicated to provide better coordination of that national ocean policy once it is established by the Executive and authorized by the Congress.

Trends indicate that the Soviet Union is overtaking, and in some cases surpassing, the United States in several areas of ocean activities, e.g., merchant marine, fisheries, and marine science. A national commitment and pursual of a sound ocean policy seems to be the combination which gives the U.S.S.R. the edge in these areas.

Debate on differing philosophies on how the capital Navy is to be structured in the United States has created a hiatus where we have no policy or strategy at all. Once more, within the Navy itself there seems to be little capacity to develop alternative strategies in structuring a fighting force capable of matching our foreign policy. These differences must be resolved quickly and in parity with our other national objectives for use of the oceans.

HIGHLIGHTS OF AUTHORS' CONTRIBUTIONS

(By John P. Hardt)

INTRODUCTORY COMMENTS

Ocean policy has become increasingly important to Soviet leadership. The relative significance of the separate aspects of ocean affairs have all been increasing: naval in military affairs; merchant marine in transportation; offshore as related to onshore exploitation of resources; fishing as related to agricultural affairs; and the law of the sea in international law. Collectively, ocean affairs is at least as important as the sum of these separate aspects of maritime affairs, as it represents in most cases the critical margin within which decisions can be made and outcomes influenced in Soviet domestic and foreign policy.

Ocean policy in the Soviet Union is formally unified, centralized and coordinated by the Communist Party and the governmental bureaucracy.

In spite of this highly centralized and formalized process for translating ocean policy into a dominant, even transcending position, there are limits and constraints for the Soviets in both policy and organization. Bureaucratic conflicts delimit clear-cut authority and dynamic growth in ocean affairs.

The papers in this volume throw light on the impressive development of the Soviet Union in ocean affairs. They also highlight the problems and choices that influence and delineate change. The compendium is organized into five sections: Policy, law and diplomacy, maritime and fisheries, resources and technology, and legislative relevance. Some of the major questions addressed in the studies, with indications of some of the answers, are illustrated below:

1. Why has Soviet ocean affairs become a global policy and what problems does its extension pose to Soviet leaders? Are there elements of continuity in Soviet and Tsarist maritime policy?

"The Soviet Union's current oceanic policy has developed in response to the imperatives of its expansive post-World War II foreign policy, the resultant strategic problems and opportunities, and domestic political-economic developments. In turn, the oceanic policy has been responsible for the full range of Soviet capabilities visible on the world's oceans today from naval vessels making courtesy calls at any foreign ports to Soviet ships carrying foreign goods, fishing off distant coasts, and carrying out scientific research on all oceans . . .

The beginning of this transformation of the U.S.S.R. from an insular landlocked nation—the interests of which the West at one time totally ignored even in areas as close to the U.S.S.R. as the Middle East—to a worldwide, oceanic competitor of the United States, can be dated to the mid-fifties. It was then that the Soviet leadership asserted global aspirations.

Thus, Khrushchev, in classic, non-Communist terminology, declared the U.S.S.R. to be a great power (*velikaya derzhava*, a term used in Tsarist Russia), with worldwide interests and without whose participation no problem on Earth could be solved . . .

Yet this transformation has given rise to political dilemmas and strategic dangers which may limit the benefit the U.S.S.R. may derive from its new status as an oceanic power.

But until a full-blown, worst case combination of United States, China, Germany, and Japan develops (if it ever does in fact) the Soviets are likely to continue their expansive foreign policy. In turn, their activities abroad will undoubtedly include even greater use, and the resultant need for continuing the buildup, of their oceanic capabilities since that policy has in the first instance provided the major impetus for the buildup and the employment of such capabilities" (Thomas, pp. 23, 36.)

The oceans policy of Soviet Russia effectively became worldwide under the aegis of Nikita Khrushchev in the late 1950's. The earlier Soviet and Tsarist policy had largely been confined to the Eurasian land mass. The change in policy may have been more related to an increase in Moscow's capacity to extend its reach than its desire to do so. There are a number of elements of historical continuity of Tsarist and Soviet ocean policy, especially as relates to naval power. The desire to extend power beyond the borders as far as possible may be one such continuous policy.

At the same time when faced by choices between security of the motherland and foreign extensions of power, the choice has continuously been to favor domestic interests. Thus, the defensive capability of naval power has always occupied, and continues to occupy, a leavening force on the offensive naval outreach.

Merchant marine, fishing, oceanographic and other ocean's interests likewise have their historical continuity. With sharply rising economic needs and capability, the elements of continuity in the civilian arena are less pronounced than in the naval realm. (Shadrin, p. 47.)

2. How does Soviet use of the oceans affect the broad range of U.S. interests?

"When it comes to general ocean regime issues, however, neither the United States nor the Soviet Union, separately or together, or for that matter in concert with the other major maritime powers (the United Kingdom, France, and Japan), swing a determining weight. As had become evident in the law of the sea negotiations, the acquiescence of the majority of some 130 coastal countries has become crucial to the exercise of the U.S. ocean mobility. The real and immediate threats to our basic geopolitical interests in access to foreign sources of energy and other raw materials, to commercial partners, and to military staging areas come from this quarter rather than from the Soviet Union. Indeed, on many of the general ocean regime issues, the United States and the Soviet Union find themselves partners in a minority coalition against the coalition of Third World coastal states. But, paradoxically, while a split between the United States and the Soviet Union on issues affecting general maritime mobility could play into the hands of the coalition of coastal states, evidence of close concerting by the superpowers on Law of the Sea issues tends to strengthen the influence of militant coastal-state nationalists." (Brown, p. 45.)

3. What is the rationale for the expansion of the Soviet Navy and its forward deployment? Does the long series of articles of Soviet naval chief of staff Gorshkov represent an authoritative position or an argument in a major debate where his view may be a minority? Has a new Soviet strategy of withholding ballistic missile submarines been developed as a move toward the wider use of the Soviet Navy in international affairs?

"Most specialists in the field now accept that the initial shift to forward deployment was a response to the threat to Russia from seaborne nuclear delivery systems. Despite this general acceptance, some still find it hard to concede that this strategic imperative was a primary determinant of Soviet naval policy in the Mediterranean. A larger number have yet to accept that the same strategic plan shaped the second phase of the deployment. They argue instead that the motivation was political and primarily intended to extend Soviet influence. There is a decreasing minority who date this shift in policy to the Cuban missile crisis in 1962 and a few go back to Lebanon in 1958 . . ." (McCWire, p. 165.)

"Over the course of 1972-73 the monthly journal of the Soviet Navy, 'The Naval Digest,' published a series of 11 articles by its commander-in-chief, Fleet Admiral of the Soviet Union S. G. Gorshkov. For Gorshkov this was an unprecedented effort, and it is understandable that the series should have aroused attention in the West. Unfortunately, Western analysis have not been able to come to a meeting of the minds either on the content of the articles or on the question of whether Gorshkov was lobbying or speaking authoritatively—and this too is understandable, since he does not make it easy for us to interpret him.

I myself take the position that Gorshkov is probably speaking authoritatively and that his work represents, not a doctrinal statement as such, but what the Soviets refer to as a 'concrete expression of doctrine,' i.e., a work rationalizing particular tenets of military doctrine that apply to the navy. In my opinion, the content of the Gorshkov series reflects a Soviet political decision to withhold a substantial portion of their submarine-launch ballistic missiles (SLBMs) from the initial strikes in order to carry out 'deterrence' in war, conduct intrawar bargaining and influence the peace talks at the end of the war." (McConnell, p. 183.)

McConnell sees the withholding of ballistic-missile submarines as part of a wider political decision to use the Soviet Navy as a direct instrument of policy in both peace and war. He concludes that the Gorshkov series is an authoritative statement, which is intended to provide a doctrinal rationalization for this new policy.

On the basis of the same evidence as McConnell, McCWire concludes that McConnell is mistaken, by pointing to the body of evidence which argues that Gorshkov is involved in a major debate.

4. Is the actual functioning of Soviet ocean policy decisionmaking and the operation of ocean affairs institutions materially different from the formal unified, centralized, and coordinated party-government organization? To what extent are the civilian and military fleets integrated in organization and operation in the U.S.S.R.?

"The theory and formal organization of the Communist Party of the Soviet Union and the Soviet Government provide for and even

require a unified policy on ocean affairs and on any major issue. An hierarchical policymaking structure is set up to consider the multiple components of ocean policy, such as naval, merchant shipping, fishing, offshore mining, scientific research, and water pollution aspects. Ideologically, the principles of party primacy and democratic centralism are maintained. The party is the authoritative source of values. The Government has the legal powers for enforcement, and the ministries manage their respective fields. This formal centralization and coordination of Soviet ocean policy differs sharply from that of the United States or any Western nation. The interplay of interests and promotion of individual or group goals is officially denied in the Soviet Union.

However, the actual structure of Soviet ocean policymaking and the bureaucratic operations involved in ocean uses are far from unified, centralized, or coordinate. The decisionmaking behind ocean policy is fragmented with various institutions commanding marginal spheres of authority. The role of the party directive has been degraded. The need for technical knowledge and expertise is very evident in ocean affairs. Most ocean issues in the Soviet Union have not been crisis issues and are resolved through the standard operating procedures of the bureaucracy. Policies are frequently the result of bureaucratic infighting or of institutions' independent and uncoordinated activities." (Sulikowski, p. 211.)

"The civilian fleets have clearly not been organizationally, structurally or integrated with the navy proper. They each have functionally autonomous administrative structures, whose ongoing concerns focus on the attainment of civilian tasks, and on the successful meeting of economic plan quotas and requirements. Each has its own functional research facilities and its own specialized personnel training schools.

It is known that a certain number of military advisers or consultants are attached to the higher planning organs of the civilian fleets, and that a certain number of both their ocean-going personnel and their school instructors are drawn from reservist ranks (as also in a number of Western countries). But exact figures are inaccessible. It is furthermore presumed that a certain, small number of active naval personnel are assigned to the civilian fleets, to operate the more sensitive types of equipment, and to ensure that the maximum military relevance is wrought from dual-purpose equipment. Yet again, exact numbers, not to mention job descriptions, are not available.

As concerns equipment, there are obvious inferences to be drawn from the traditional heavy Soviet stress on standardization and interchangeability of parts. Hulls, engines, radars, sonars, etc. are procured through defense industry ministries, such as shipbuilding, medium machine building and general machine building, and radio and electronics. Specifications from civilian fleet organs are channeled through the military industrial commission, which is presumed to be responsible for the meshing of civilian and naval requirements.

Thus some shipyards, quays, and other port facilities are highly specialized and functionally oriented to the satisfaction of the peculiar demands of particular fleet branches (such as refrigeration trawlers, contained transports and/or elements of the submarine forces). But when dictated by calculations of optimality, economics, or expediency,

integration of facilities has been and is encouraged: it is, for example, known that Leningrad's admiralty and Baltic yards have ongoing extensive shipbuilding programs of both civilian and military character, as the city's Sudomekh complex probably does.

. It is believed that the day-to-day coordination of military and civilian tasks is conducted through special committees within the responsible ministries, committees which in the civilian ministries count naval representatives among their members, and which rely heavily on the automatic control system (ACS) as a conduit both for collation of data and for dissemination of decisions. But there is little doubt that civilian concerns predominate within these ministries. There must therefore be recourse to higher authority in cases where military requirements burst the seams of established coordinating procedures." (Jacobsen, pp. 258-259.)

5. How do Soviet interests on ocean affairs influence its policy on the law of the sea and its conduct of diplomacy?

"Ideologically and rhetorically the Soviet spokesmen in the United Nations' law of the sea debate incline towards "the progressive development" of international law. Substantively, however, they promote the classical law of the sea, guarding the traditional system of ocean order more vigilantly than the delegations of the 'conservative' powers, the United States, Great Britain, and France. Despite the dilemmas posed by the U.S.S.R.'s commitment to Marxist communism, the nature of its maritime interests forces the Soviet Union abashedly into a deeply conservative law of the sea position.

The U.S.S.R. has erected, at great cost, extensive systems of ocean use. The Soviet Navy, fishing fleet, merchant marine, oceanological, and ocean mineral establishments put the U.S.S.R. into the front rank of maritime powers. But no other maritime power relies so greatly on access through, and to the waters lying off, the shores of other states. The Norwegian Sea, the Baltic and North seas, the Mediterranean, and the Sea of Japan ring Soviet waters. Only northeastern Siberia lies directly off an ocean. Radical change in the law of the sea could drastically curtail Soviet ocean use by cutting off rights of ocean transit and exploitation. The combination of massive investment by the U.S.S.R. in ocean activities and the poor geographical situation of the country explain why the Soviet Union has been obliged to be the staunchest defender of the old ocean order, resisting the demands of many Third World states in the law of the sea debate.

Ever since the beginning of the current U.N. sea law debate in 1967, the U.S.S.R. has been found on the side of the traditional freedoms of the high seas. The Soviet Union has opposed limits on national maritime activities either by coastal states or by an international ocean regime.

The inconsistency of the Soviet ideological and substantive positions is another sign of increased East-West collaboration and of the emergence of a North-South split in international relations. The old ideological battle of the cold war is giving way to conflict between the developed and underdeveloped countries. As a developed country, the U.S.S.R. is finding its interests more in line with the Western maritime powers than with the developing Third World states. On law of the sea issues, the Soviet Union even finds itself to the right of the United States, Great Britain, and France on some questions

such as the exclusive economic zone. The Soviet Union is a leading law of the sea conservative, no matter how much it doth protest." (Janis, pp. 287 and 293.)

"Given the question mark that hangs over a number of natural resource problems within the boundaries of the Soviet empire, it is noteworthy that the eyes of Soviet economists and military men alike are turning increasingly toward the untapped wealth of the sea.

The commander of the Soviet Navy, Admiral S. G. Gorshkov, in his definitive recent series of articles on naval power in the organ of the navy, *Morskoy Sbornik*, devoted a major portion of his concluding article to this very question."

As quoted in the paper by Uri Ra'anen:

"... Soviet diplomacy has played its far from brilliant cards very ably and has largely managed to convince the West that the development of foreign trade is of far more benefit to it than to the Soviet Union. What is more, it has even used this factor as an instrument of pressure on the Western countries.

"A fitting coda is provided by something that Henry Kissinger wrote in 1957: 'We retreat before Soviet might and yet we are afraid to make use of Soviet difficulties. This difference in willingness to take a risk has been the Soviet Union's main advantage in the postwar period, almost outweighing all its shortcomings.' " (Ra'anen, pp. 285, 304-305.)

Specific foreign policy issues illustrate the interplay of the various facets of Soviet ocean policy. For example, the fisheries issue with Japan and the control of Spitzbergen with Norway:

"The fisheries issue has played an important, although at times detrimental, role in the development of "good-neighborly" Soviet-Japanese relations. While relations in general have been steadily improving between the two countries, fishery negotiations continue to encounter both progress and problems. In the past, the Soviet Union has exerted various forms of pressure upon Japan to secure its interests, including reductions of quotas and fishing areas, seizure and detention of scores of Japanese fishermen, and refusal to negotiate over certain issues. However, productive bilateral discussions have lessened the degree of conflict in procedural matters and have resulted in the creation of some cooperative endeavors." (Houghtaling, p. 308.)

"Sovereignty over the Svalbard/Spitzbergen archipelago has long been a subject of extreme concern and sensitivity to Soviet security organs.

Yet, finally, one must return to the point that the fulcrum for all Soviet policy initiatives in the area lies in the Kola base complexes; and that the character of these initiatives are determined by the geopolitical realities and constraints of the Kola Peninsula. Geopolitical facts dictated the development of Kola as the most vital core area of expanding Soviet Naval and civilian fleets. Geopolitical facts dictated these fleets' dependence on unimpeded passage through the Norway-Bear Island gap.

Moscow could no more tolerate hostile control over that gap than she could tolerate hostile control over the mountain ranges of western Czechoslovakia (east of which the plains stretch flat, if marshy, to Moscow). If she considered Svalbard sensitive enough to warrant thoughts of intervention in November of 1944, then there can be no doubt that its much increased strategic value today would be

seen to justify and indeed demand intervention in the event of its future hostile utilization." (Jacobsen, pp. 321, 329-330.)

6. When did Soviet merchant marine expansion accelerate? How does the Soviet fleet compare with those of other maritime powers? What has been Soviet maritime policy and performance as it influenced the liner trades of the United States?

"The Soviet merchant fleet achieved its most spectacular growth from 1962 to 1966. This expansion, stimulated by increases in seaborne trade at annual rates averaging more than 30 percent for 3 years in a row, raised the fleet's world standing from 12th largest in 1962 to 7th largest in 1964. Accelerated deliveries to other countries' fleets dropped the Soviet fleet's standing from 7th largest in 1973 to 10th largest in 1974. The fleet's capacity at the end of 1974 was 14.2 million deadweight tons (dwt), 3 percent of the world total and less than one-fourth that of the world-leading Japanese fleet.

Although 65 percent of Soviet merchant tonnage is less than 10 years old, a number of long-standing qualitative deficiencies place the Soviet fleet behind Western fleets in maritime technology. Because of draft limitations in U.S.S.R. ports, the average size of Soviet merchant ships is less than half the world average. Moreover, the Soviets have just begun to acquire tankers and bulk carriers larger than 50,000 deadweight, small by Western standards. At a time when the movement of general cargo in scheduled liner service on major routes like the North Atlantic and the North Pacific is dominated by containerships, roll-on/roll-off vessels, and other craft that carry cargo in modular units to minimize time in port, the U.S.S.R. still relies heavily on conventional general purpose dry cargo ships on which general cargo is loaded piece by piece. Although the next 5 Year Plan addresses these deficiencies, the Soviet fleet still has a large qualitative gap to close in catching up with Western maritime powers in the liner field." (Carr, p. 331.)

Some problems for the U.S. liner trade have been exacerbated by Soviet policy.

"The U.S. liner trade is essentially an open trade without restrictions to entry or exit. Groups of carriers, organized as shipping conferences, establish agreed upon rate levels for member carriers and operate on most of the major trade routes.

On U.S. routes, Soviet carriers are operating under a policy of offering frequent sailings at reduced rates to penetrate our trades. They tend to offer lower rates on attractive cargo to maximize hard currency earnings from shipping revenues.

There are several indications that a steadily increasing share of U.S. liner cargo is moving on nonnational flag cross trading vessels operating in our trades. Legislation has been proposed to remedy this situation, and it is now before the Congress. Senate bill No. 868 would have as its objective the prevention of 'dumping' of excess ship capacity in U.S. sea lanes by these third-flag carriers." (Adam and Witteveen, pp. 347-348.)

"It had to be recognized on both sides that a maritime agreement would be mutually beneficial. The Soviets realized that a maritime agreement would provide them continuing access to U.S. feed grains critical to their plans to increase the protein content of the Russian diet. They realized that future access to a broader range of American

goods and services would also be fostered and the U.S.S.R. would gain cargoes for its rapidly expanding merchant fleet. The United States realized a shipping agreement would facilitate the export of surplus grain crops to a new market, and that these sales would contribute to the U.S. balance-of-payments position, as would the sale of the broader range of commodities that would be exported to the U.S.S.R. in the future. In addition, the use of U.S.-flag ships rather than third-flag vessels would reduce the outflow of U.S. dollars and the development of a new market would increase job opportunities in shipping and agriculture as well as in other sectors of the economy." (Blackwell, p. 369.)

7. How have investments, the fishing catch, and the size of the Soviet fishing fleet changed in recent years?

"During the last 25 years, Soviet fishermen have been remarkably successful in adding to the country's fisheries catch. Increasing at an average annual rate of about 18 percent, the 1974 total Soviet catch of fish, shellfish, marine mammals, and other aquatic animals and plants amounted to 9.6 million metric tons (11.1 billion pounds), or 450 percent more than the 1.8 million tons which were harvested in 1950. This large increase was made possible by a spectacular buildup of the Soviet fishery fleet, which includes now over 850 vessels supporting far-flung harvesting operations conducted by almost 3,500 fishing vessels throughout the world's oceans. . . .

A dramatic switch occurred in the mid-1950's in the type of programs financed by fishery investments. Until then about half of the total annual investment was spent on building the fleet; the other half was used to build "shore plants" (ports, cold-storage, processing plants, etc.). During the subsequent 10 years (1956-65), investments allocated for the buildup of the fishing fleet amounted to 78 percent of total fishery investments. These large sums were spent on the design and development of several new classes of fishing vessels, including the large and medium stern factory trawlers and, more recently, the catamaran fishing trawler. It was during these 10 years that the U.S.S.R. more than doubled the tonnage of her fishery fleet, entered most major distant-water fisheries, including the grounds off the United States, and became a major fishery power with worldwide interests.

Since 1966, this one-sided investment policy has changed, somewhat, although 69 percent of all investments continued to be spent for fishing and fishery support vessels during the 1966-70 period. It is expected that during the 1970's the Soviets will switch their priorities once again and increase investment capital for programs aimed at perfecting the "shore facilities." Several new fishing ports were constructed in the early 1970's, and modernization of cold-storage plants and automation of processing plants are becoming major investment objectives." (Kravanja, pp. 391, 393.)

8. What are the policies, problems, and prospects for Soviet offshore oil and gas development? What are comparable policies, problems, and prospects in exploitation of ocean mineral resources?

"For the past few years the Soviet Union has been attempting revive its long neglected offshore petroleum industry. In spite of apparently vast reserves, Soviet offshore production slumped to a 10-year low in 1974 and has been falling since 1970. Offshore natural

gas production, however, has made strong gains which have compensated for falling crude oil output. The Soviets feel that 1975 will be the turnabout year for crude oil and condensate production from the Caspian Sea and that in the next decade there will be a record expansion of the offshore petroleum industry. There is already considerable evidence to substantiate this projection. New development technology is beginning to reach the Caspian Sea in increasing quantities, and more investment, material, and manpower have been authorized than ever before for subsea petroleum operations on all of the prospective Soviet shelves. There are indications that the Soviet Government has become increasingly impatient with the slow pace of domestic design and construction of modern mobile offshore rigs and that it may purchase more foreign units, using its limited supply of hard currency.

The Soviets, with future energy requirements as great as any major industrial nation, are planning for an increasing effort in offshore hydrocarbon development, as a part of a total effort to increase oil production and to economize on fuel use, which will receive special attention in the next 5 Year Plan. This shift in policy is the result of the failure of domestic oil production to increase as rapidly as planned; current oil reserves, particularly in the Arctic, proving technologically more difficult and expensive to exploit than expected; and domestic and allied demand expanding faster than anticipated. By 1980, Soviet domestic requirements could match output, at which time the Soviet Union would have to become an importer of crude oil should it wish to continue to supply its allies.

The Soviet Union appears determined to increase crude production to maintain its energy independence. It is raising its oil production goals beyond those which some Western experts have already judged to be over ambitious. As a part of this program, offshore oil exploitation will be greatly expanded, but the realization of the very high quotas set would seem to depend in part upon the purchase and utilization of additional foreign technology." (Riva, p. 479.)

"The Soviet Union is continuing to place increasing emphasis on the extraction of minerals from seawater and the development of marine mining. Reports in the Soviet press indicate that while the West is more technologically advanced in these areas, development is proceeding at a fast pace in the Soviet Union. In addition, the Soviets hope to increase the efficiency of their mineral resource exploitation in many areas through acquisition of Western technology, along with technology development of their own. . . .

The Soviet Union is fully self-sufficient in 29 of 36 key industrial materials, and the extraction of many minerals in the Soviet Union is doubling approximately every 8 to 10 years. Soviet exports of mineral commodities include aluminum, antimony, cadmium, chromium, copper, iron, lead, magnesium, manganese, titanium, vanadium, zinc, abrasives, asbestos, cement, clays, fertilizer materials, cryolite, graphite, gypsum, salt, sodium and potassium compounds, sulfur and pyrites, tac, carbon black, coal, coke, natural gas, and petroleum. However, self-sufficiency is not the entire goal of Soviet mineral development policy. Exports of minerals produce foreign exchange to help pay for imports, even though most minerals exported could be consumed within the country. Fuels, minerals, and metals made up about

40 percent of the total declared Soviet exports in 1974." (Mielke, pp. 501-502.)

9. How does aquaculture fit into Soviet fishing and agricultural plans?

"The Soviet Union supports one of the largest fisheries industries in the world. Fisheries research in Russia dates back to the 13th century. Until about 1928, most research involved surveys and expeditions to determine the extent and types of fish available for exploitation. However, after 1928, there was increased emphasis on fish husbandry and the management of fishery resources. . . .

. . . Today, the Soviet effort in aquaculture and the associated marine biological sciences is among the largest in the world . . . The area devoted to fish culture in the Soviet Union has more than doubled since the 1950's.

As stated by Doryshev, there are two major reasons for the increasing emphasis on aquaculture in the Soviet Union. First, the concept that fish populations in the world oceans are infinite is rapidly being proved to be an illusion. It is true that reserves of unexploited fish could add significantly to total fisheries production, but reserves of certain commercially valuable stocks are shrinking considerably in recent years, due to overfishing. Second, the accelerated development of marine biology, ecology, and engineering has made it possible to develop aquaculture as a major component of the economy, like agriculture.

. . . Whether the increased emphasis on aquaculture will be at the expense of Soviet fisheries programs is open to speculation. It is clear, however, that the Soviet emphasis on aquaculture anticipates that the production potential of fisheries will continue to dwindle while the demand for fisheries products will continue to increase. The Soviets have chosen aquaculture to fill that projected supply-versus-demand gap." (Dodge, pp. 511, 522.)

10. How have the demands of a deteriorating coastal environment been met in the Soviet Union?

"Environment protection in the Soviet Union appears to be neither more nor less advanced than in other industrialized countries . . .

. . . Pollution of rivers feeding into coastal zones, oil pollution in the major seas, and erosion of coastal areas appear to have resulted from the demands of economic growth, most of which has occurred over the past five decades.

. . . Soviet attitudes toward the environment have changed considerably, and corrective measures are being taken. If economic growth priorities permit, and to the extent that environmental improvement costs can be assimilated in that process, the Soviet environment, including its great river basins and coastal areas will show improvement in the future." (Sherman, p. 528.)

11. How have the manned and unmanned Soviet programs for undersea research and technology fared?

". . . Soviet ocean policy is truly integrated, unlike the present fragmented U.S. programs. The successes of this large and integrated policy have been particularly impressive, if not startling, in the past two decades.

. . . What is commonly overlooked, however, is the anomaly of Soviet manned and unmanned undersea research and technology pro-

grams. For juxtaposed against the successes . . . these programs have not kept pace with the Western world, and in particular, the United States.

As in Western countries, the major components of Soviet undersea research and technology can, for convenience sake, be subdivided into manned and unmanned research submersibles and submarines; underwater habitats, and shallow and deep diving by man in the open sea or inland waters as associated or distinct from the first two categories." (Dodge, 529.)

12. What can be expected of the U.S./U.S.S.R. agreement for cooperation in oceanography?

"In summary, the agreement has provided a means of facilitating cooperative efforts by the two nations of the world with the most extensive interests in the oceans and breadth of related activities. By bringing together these capabilities and interests to work cooperatively on problems of mutual interest, the results should benefit all mankind. . . .

. . . Results from the planned or ongoing studies under the agreement are expected to further our understanding; (a) of the ocean's influence upon weather and climate and in turn our ability to improve weather prediction; (b) of the processes taking place within the oceans which are important for fishery assessments, studies of oceanic pollution, and environmental forecasts; (c) of the sea floor and the processes which generate continental margins and operate along the midoceanic ridges; and (d) of the nature of living resources of the world ocean and the processes associated with productivity. It is hoped that such results will advance man's understanding of the potential of the world ocean through wise use, as well as his ability to assess the impacts of man upon the ocean environment. Such understanding is needed by all nations of the world." (Martineau, pp. 563-564.)

13. How has the United States dealt with the excessive fishing off U.S. coasts in recent years?

"Cooperation in fisheries between the United States and the Soviet Union has its genesis essentially in the desire of both countries to seek solutions arising as a result of conflicts of interest over the utilization of the ocean's marine resources off the U.S. coast in international waters. . . .

Despite the success which the United States has achieved recently in negotiating a more effective conservation arrangement with the Soviet Union, there remain many resource problems of concern to the United States. These problems obviously cannot be solved only in the context of our bilateral relations with the Soviet Union, since the Soviet Union is but one of many countries fishing off the U.S. coast. One of the major problems includes continued overfishing of certain species, such as hake and pollock. . . .

At this point in time, it is manifest that bilateral relationships that currently exist with the Soviet Union, and indeed with other countries who fish off U.S. coasts, will necessarily have to be responsive to whatever outcome there might be in the Law of the Sea Conference." (Nakatsu, pp. 463, 470 and 472.)

14. What is the relative status of oceanography in the two super-powers?

“The conduct of oceanographic research on a large scale is relatively young in both the Soviet Union and the United States. In the United States, oceanography underwent very rapid growth during the Second World War when the Government and the scientific community suddenly realized that nature is often a limiting factor in the effectiveness of new devices designed for use in the ocean. . . .

The Soviet Union began its major oceanographic expansion in the 1950's, around the same time they pushed ahead with the development of a major worldwide fishing capability and a large merchant marine.

Evidence indicates that the United States was the world's leader in oceanography (measure in terms of inputs: ships and scientific personnel) until the early 1960's, when the Russian program of expansion was well underway.” (Franssen, pp. 545-546.)

15. How relevant are the impressive Soviet ocean's policy and administrative changes to the United States?

“ . . . Soviet successes should not imply a need for restructuring U.S. ocean policy along Soviet lines. Aside from the basic commitment to a unified ocean policy, made at the highest level in Soviet Government and the Communist Party, there is little organizationally worth borrowing from this system.

Soviet oceans policy and administration is formally centralized and unified. In fact, however, the various compound elements operate fairly independently of each other, often in competition. If the top leadership choose they could direct a unified administration. This would require Party intervention at all levels and might be more costly in loss of technical efficiency than perceived gains in unified policy. Were U.S. policy unified or even organized at the top, ocean policy guidelines could be established as a basis around which technical consensus could be reached. No need for direct political intervention in each technical sphere would be required. The point is that the American system has the capability for more effective coordination and performance. What is needed is some oceans policy apparatus at the top, and further coordination of those scattered civilian ocean activities which logically belong in a single agency or department.” (Franssen, pp. 627-628.)

POLITICAL-STRATEGIC FRAMEWORK FOR SOVIET OCEANIC POLICY

(By John R. Thomas*)

Soviet Union's current oceanic policy has developed in response to the imperatives of its expansive post-World War II foreign policy, the resultant strategic problems and opportunities, and domestic political-economic developments. In turn, the oceanic policy has been responsible for the full range of Soviet capabilities visible on the world's oceans today from naval vessels making "courtesy calls" at many foreign ports to Soviet ships carrying foreign goods, fishing off distant coasts, and carrying out scientific research on all oceans.

NEW FOREIGN POLICY

The beginning of this transformation of the U.S.S.R. from an insular landlocked nation—the interests of which the West at one time totally ignored even in areas as close to the U.S.S.R. as the Middle East—to a worldwide oceanic competitor of the United States can be dated to the mid-fifties. It was then that the Soviet leadership asserted global aspirations.

Thus, Khrushchev, in classic, non-Communist terminology, declared the U.S.S.R. to be a great power (*velikaya derzhava*, a term used in Tsarist Russia), with worldwide interests and without whose participation no problem on earth could be solved. The current post-Khrushchev leadership reaffirmed his sentiment with even greater vigor, though in less colorful language. The Soviet Foreign Minister Gromyko put it most explicitly in 1968:

The Soviet Union is a great power situated on two continents—Europe and Asia, but the range of our country's international interests is determined not by its geographical positions alone . . .

The Soviet people do not plead with anyone for a say in the solution of any question concerning the maintenance of international peace, the freedom of and independence of the peoples and our country's extensive interests.¹

And, hinting at an expanding Soviet oceanic policy, Gromyko declared further:

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¹"Consistent Policy of Peace," Report to the U.S.S.R. Supreme Soviet on June 27, 1968, Novosti Press, Moscow, 1968, pp. 37-38.

Equal rights in all sectors and in all spheres of activity in the international arena, including the adoption of measures to protect the vital interests of the Soviet Union, its allies and friends; . . . freedom of navigation for ships and fleets, no lesser than that for the ships and fleets of any other power—all this determines our prospects and responsibility in world affairs.²

Somewhat later Brezhnev, in reacting against attacks on Soviet military policy, confirmed the new Soviet interest in freedom of the seas around the world:

. . . The U.S. Propaganda machine has initiated a whole campaign concerning the Soviet fleet. In Washington, it seems, a threat is envisioned from the appearance of our ships in the Mediterranean, in the Indian Ocean, in other seas. But with this, American politicians consider it normal and natural for the 6th Fleet to be continually in the Mediterranean, which can be called the underside of the Soviet Union, and for the 7th Fleet (to be) at the shores of China and Indo-China.

We never did and do not consider it an ideal situation in which the navies of a great power for extended times cruise scores of lands away from their own shores. And we are ready to solve this problem, but to solve it, so to say, as equals.³

Having received the cue from the political chiefs, the Soviet military leaders thereafter echoed the new policy line by similarly expanding the definition of the mission of the Soviet Armed Forces to cover the larger scale of Soviet interests. According to Marshal Grechko, the late Soviet defense minister, the U.S.S.R. Armed Forces serve to defend the extensive gains of the socialist commonwealth now that under "the impact of the growth of the international authority of the U.S.S.R. fundamental changes in the world have occurred . . ." and "Capitalism has ceased to be the indivisibly dominant force in the world."⁴

And, Admiral Gorshkov, the Soviet naval commander, underscored the change in Soviet foreign policy by noting the consequences for his command: the U.S.S.R. has created a new type of armed forces—an oceanic navy which, with its long range capabilities, guards Soviet state interests on the world's seas and oceans.⁵

In pursuit of the new global aspirations and missions, the U.S.S.R. leapfrogged into distant areas, beginning with massive aid to Egypt in the 1950's and following up with diplomatic and economic contacts with nations in Africa, Latin America, and Asia in the 1960's and 1970's. As a result, Soviet material aid and military and technical personnel were sent to many areas of the world which had never before seen Soviet presence.

Both the assertion of global aspirations and the implementing actions were a clear reversal of Stalin's conservative foreign policy. With

²Ibid., p. 39.

³L. I. Brezhnev, "O Vneshnei Politike KPSS i Sovetskogo Gosudarstva" (On Foreign Policy of CPSU and Soviet State), Political Literature Publishing House, Moscow, 1973, p. 376.

⁴A. A. Grechko, "Vooruzhenniye Sily Sovetskogo Gosudarstva" (Armed Forces of the Soviet state), Military Publishing House, Moscow, 1975, p. 96.

⁵"Boevoi Put' Sovetskogo Voennomorskogo Flota" (The Fighting Path of the Soviet Navy), Military Publishing House, Moscow, 1974, pp. 5-6. To further underscore the change, this work, in tracing the transformation of the Soviet fleet from a defensive to an offensive arm of the U.S.S.R., notes that for the first time in its history, the fleet has long range, strategic capabilities which can fundamentally affect the outcome on oceanic and continental war fronts.

the exception of ideological rhetoric about support of international proletariat and of the secret financing of Communist parties abroad, Stalin never claimed for the U.S.S.R. great power interests on a global scale, much less acted on them. And his use of Soviet capabilities, particularly military, were confined closely to the Soviet periphery. Indeed even here his behavior was very cautious: he drew back when confronted by determined opposition. For example, in 1946, Stalin withdrew Soviet Army units from Iran after President Truman threatened strong U.S. action to force such a withdrawal. (The Soviet forces, together with allied troops, had entered Iran during World War II to insure the flow of allied aid to the Soviets; but in contrast with the allied withdrawal, they remained in Iran after the end of the war despite an earlier agreement for removal of all forces 6 months after the end of the war.)

But the foreign policy, inaugurated by Stalin's successors, was not only a radical break with his policy but also impacted significantly on Soviet strategy.

THE IMPACT OF THE NEW FOREIGN POLICY ON SOVIET STRATEGY

The post-Stalin expansive foreign policy resurrected traditional strategic threats to and created new complexities for the Soviet Union. It revived the traditional two-front challenge to the U.S.S.R. on the Eurasian continent; created a new strategic challenge of the United States as a powerful adversary; and, triggered U.S.S.R.'s effort to project its support and influence to the developing countries far beyond its immediate periphery.

GEOPOLITICAL SITUATION

In the main, these strategic problems have arisen from and have been heightened by U.S.S.R.'s geopolitical situation. The Soviet Union is in a geopolitical bind unlike any other nation in the world. Striving to be a global power like the United States, the Soviet Union has not, because of its location on the Eurasian continent, had the advantages of the United States. In a balance of power context, it does not have the United States option of playing an offshore role in a major conflict on the Eurasian continent, if that is considered to be the main area of U.S. and Soviet interests. Again, unlike the United States, the Soviet Union does not have the option of detaching itself from either Europe and Asia or both. While unlikely to do so, the United States nevertheless has the choice of "walking away" from either Europe or Asia, or both.

The Soviet Union's two-continent location also imposes on it strategic disadvantages which do not confront other major European nations. Thus, while Western Europe faces a direct threat only from the East, the Soviet Union potentially must consider a challenge from both the East and the West. Consequently, Soviet capabilities cannot be measured by simply matching them against those of either or both the United States and West Europe since this does not reflect the full magnitude of Soviet Union's disadvantages. Even apart from the United States, the manpower, economic and military capabilities of West Europe objectively are, or potentially can be, equal to those of the Soviet Union; this may particularly be the case if considered

against the U.S.S.R.'s need to divide its strength between the West and the East to meet potential threats from both directions. (West Europe's main problem is political: the will to unite to meet a common challenge.)

With regard to projecting its power beyond the Eurasian continent, the Soviet Union is again handicapped by its geopolitical situation. Its direct and easy naval and maritime access to the global oceans and seas is impeded in key areas by geography: its ships have to pass through narrow straits, e.g., in the Black and the Baltic Seas; but these passages are controlled by others and can serve as easy targets for "bottling up" Soviet ships.

THE TWO-FRONT THREAT

The geopolitical context described above suggests the magnitude and complexities of the strategic problems facing the Soviet Union which have been evoked by its expansive foreign policy and which are likely to serve as constraints on Soviet freedom of action abroad. As a first problem, it faces a two-front challenge on its Eastern and Western flanks. The two-front threat is deeply imbedded in Russian and Soviet psyche by past and recent history. This includes invasions from the East and West which date as far back as the 13th Century when the Mongol hordes and Teuton knights devastated Russian soil. The incursions by the Japanese and the Germans in the 1930's and 1940's were the modern versions of this threat to Russia.⁶

In the current context the challenge is posed by West Germany and China. With regard to Germany, a traditional continental rival, the Soviets assume that West Germany, due to its size and strategic location, will dominate any future alliance arrangements in West Europe, particularly if the United States should reduce its role in Europe. (Germany is already the dominant European member of NATO.)

The Soviets also believe that Germany is likely to enhance its strength in the future by direct access to nuclear weapons and missiles. Even if there is no objective basis for assuming that it will acquire its own nuclear-missile capabilities, the Soviets perceive this will or may occur. They already consider the current U.S.-West German dual arrangements as giving the Germans a finger on the nuclear trigger. Moreover, the U.S.S.R. is convinced that the Germans even now are capable of independently producing missile weapons but are constrained at present only by political expediency.⁷ In the Soviet view, this constraint is susceptible to erosion, and will change. But, even in the worst case of national acquisition of nuclear-missile armaments, West Germany would offer relatively little concern to the Soviets

⁶The two-front threat is so ingrained in the thinking of Soviet strategists that even seemingly unrelated activities are put in context of that classic threat to Russian security. Thus, as a young naval officer, Admiral Isakov, the one-time Soviet deputy naval chief, did a study on the WWI attack by Japan on German-held Tsindao in China while the Germans were preoccupied in the West. His biographer indicates that Isakov later examined the lessons of that situation for its application, under comparable circumstances, to a U.S.S.R. simultaneously threatened from the East and the West. (See V. Rudny, "Dolgoye, Dolgoye, Plavanie" (Long, Long Cruise), Moscow, 1974, pp. 102-3.)

⁷As far back as 1964, the Soviets interpreted West Germany's manufacturing of missiles for meteorological use by non-German consumers as masking capabilities for producing combat missiles. (The Soviet protest on this score is contained in *Pravda*, Feb. 4, 1964.) By implication, the Soviets suggested a parallel with German manufacturing of weapons in the interwar period in violation of the Versailles Treaty. They conveniently omitted, however, the fact that in the twenty's they gave the Germans a big start by allowing the Reichswehr to manufacture tanks, aircraft, and other weapons on Soviet soil.

if, alone and unaided, it posed the only threat: they could successfully meet it by the superior ground forces and nuclear-missile capabilities which they have acquired since World War II.⁸

But, China, as a potential enemy, has added another dimension to Soviet strategic problems. With the defeat of Japan in 1945 and the Communist victory in China in 1949, the Soviets assumed that they had permanently solved the two-front threat posed before World War II by Germany and Japan. However, since the eruption of the bitter dispute in the late 1950's, the U.S.S.R. must assume a hostile China, either alone or in implicit collusion with West Germany or others. (The Soviet perception of possible alliances against the U.S.S.R. is discussed below, in section IV.)

Indeed, the major impact of Communist China on Soviet policy has been to transform Sino-Soviet relations into a state of armed hostility and force the Soviets to view China as an active threat to their national security. As a result, the Soviets have built up their forces on the China border to some 50 divisions or over one million men.

This buildup has been accompanied by organizational and command changes which indicate the Soviet expectations about the permanency of the China threat. In 1969, the Soviets established a new Central Asiatic Military District with all that this implies in terms of Soviet military contingency planning for an integration of forces at an important sector of the Sino-Soviet border. (This move may be compared to the Soviet organization of a special military command in the Far East, just prior to the Soviet attack on the Japanese in Manchuria at the end of World War II. On that occasion, the Soviets organized a special command under Marshal Vasilievsky with three operational fronts designed to capture Manchuria from the Japanese.)

With regard to command changes, General I. G. Pavlovsky—then a relatively junior officer—was promoted in 1967 from Commander of the Far East Military District, which he had headed since 1964, to Deputy Defense Minister and Commander of the Soviet land forces. He was originally sent to the Far East apparently to modernize the Soviet forces in the area. It can be surmised that he was subsequently brought to Moscow in order to do contingency planning for a possible land conflict with China.

And in 1968, General Tolubko, the Soviet deputy commander of the Soviet strategic rocket forces prior to that date, was sent to the East to take command of the Far East Military District. It can be assumed that he was detached from the central missile command in order to use his experience in organizing possible new missions for Soviet strategic and tactical missile forces based in the Far East; these missions might include possible attack against Chinese nuclear-missile facilities, alone or in combination with any landforce operations worked out by Pavlovsky. (Subsequently, Tolubko was promoted to full general and replaced Marshal Krylov as commander of U.S.S.R.'s strategic rocket forces; this meant that the command of the most important arm of the Soviet Armed Forces was placed in the hands of a man very familiar with the threat in the East.)

⁸The Soviet confidence in their ability to handle a German threat without the United States was expressed even at a time when Soviet strategic capabilities were far less than they are today. (See Party Secretary Leonid Brezhnev's declaration to the 23d party Congress, *Pravda*, 30 March 1966.)

THE CHALLENGE BY THE UNITED STATES

On top of the traditional two-front threat, the United States has added an entirely new dimension to postwar Soviet strategic problems. In Soviet view, the United States challenge differs from any Eurasian threat for the following reasons: the United States is a noncontinental power, and hence beyond the reach of Soviet ground forces; the United States currently still has an overall edge in nuclear-missile capabilities, if the reported U.S. lead in multiple warheads is valid; and, most important, the United States has the economic and technical resources to increase its military capabilities which the Soviets could not hope to match in the foreseeable future; therefore unless the United States deliberately permits it, the U.S.S.R. cannot get a permanent, overwhelming edge over the United States. Consequently, a possible U.S.-U.S.S.R. confrontation poses almost insoluble problems for the Soviets. Unlike a German attack on the Soviet Union, which at worst could be blunted by the traditional Russian strategy of trading space for time, a U.S. nuclear-missile attack cannot be met by a similar strategy. Indeed, for the first time such an attack threatens Soviet political centers without a need for a foreign foe to invade Soviet territory. The impact of such a possibility must be viewed against the background of the 1941 Nazi attack. Even without the capture of such key centers as Moscow and Leningrad, the German invasion almost led to U.S.S.R.'s collapse.

THE STRATEGIC PROBLEM OF THE DEVELOPING WORLD

In addition to the two-front and U.S. threats, the Soviets face a problem with regard to the developing areas. Like the Soviet-postulated threat from the United States, this is also a new postwar challenge: how to effectively project U.S.S.R.'s military power and influence beyond its periphery, regardless of whether the need arises from great power imperatives or ideological requirements for the support of "national liberation struggles." In Stalin's days, this problem did not confront Soviet strategists since he neither asserted overseas objectives nor did the Soviets have the capabilities for attaining them. Indeed, he viewed the Third World as a strategic reserve of "Western imperialism"; given the latter's control over the reserve areas, they could only be undermined through an attack on the "homeland" capitalist bastions.

In this context, Stalin viewed the few ex-colonial areas at the time which had gained their independence from the mother-countries, e.g., India, as "lackeys of imperialism" since these new nations would not blindly follow his lead. The Soviet view then was relatively simple: those who were not with them were against them.

On Stalin's death, Khrushchev drastically reversed Soviet policy: even if the Third World countries chose not to be totally subservient to the Soviet cause, they could serve Soviet interests as long as they were anti-Western. The new policy opened up a vast arena for Soviet political action; but it also confronted the Soviet strategists with the concrete problem of how to exert Soviet influence in areas beyond the Soviet periphery. This was a particularly challenging problem at that time because the Soviets lacked both naval and air capabilities for delivering Soviet material support over long distances or for show-

ing the flag. Indeed, when World War II ended, the U.S.S.R. had only a coastal, defensive navy and no strategic air force or air transport capabilities.

In sum, the Soviets, as a result of post-Stalin aspirations, have been confronted by the gigantic problem of developing separate and non-interchangeable capabilities to counter a nuclear-missile attack from the United States, to defeat a ground attack on the Eurasian continent from either or both the East and the West, and to support non-peripheral national liberation struggles. They have had to address this problem in the context of a severely strained economy and rising demands from the Soviet people to satisfy their consumer needs at home.

OCEANIC POLICY IMPERATIVES

STRATEGIC

The Soviet strategic challenges have required an increase in oceanic capabilities either "to solve" the problems they created or to capitalize on the opportunities they offered. Thus, with regard to the two-front threat, the Soviets perceive a need not only for landforces but also for naval capabilities in order to outflank from the sea both China and NATO, particularly West Germany as the European keystone of the alliance.⁹

With regard to the challenge posed by the United States, the Soviets perceive, in addition to strategic missile forces, a need for appropriate naval capabilities both to interdict United States assistance to NATO in the event of an armed conflict in Europe and to attack the United States directly from the oceanic depths, if necessary.¹⁰ Such a naval capability is particularly required because the United States, as a power outside the Eurasian continent, is beyond the reach of the U.S.S.R.'s landforces and hence cannot be dealt with in a "traditional" manner of being overrun by those forces.

In a similar vein of a new challenge not amenable to a traditional solution, the Soviets have had to confront an unfamiliar problem of projecting Soviet presence and influence in the developing world; the latter, like the United States, consists of areas beyond the U.S.S.R.'s immediate periphery. As a result, the Soviets perceive a need for appropriate naval and maritime capabilities. Since the mid-fifties, they have addressed the problem by developing airlift and sealift capabilities as well as training amphibious and airborne forces. These are intended to meet the great power requirements of being able to "show the flag," e.g., Soviet ships now make port calls with great regularity. At the same time, the increased capabilities are also needed to meet the ideological requirements of being able to support "struggles for national liberation" via military advisers and materiel, as was the case, for example, in Vietnam and, most recently, in Angola.

⁹Soviet Navy's need for a capability to strike objectives deep in the rear of an enemy is detailed in "Boyevoi Put'", op.cit." p. 493. In this connection, Admiral Gorshkov indicates the Soviet Navy has capabilities to affect the outcome of a conflict on continental as well as ocean war theaters.

¹⁰A discussion of how sealanes of potential oceanic enemy must be disrupted and his home territory targets hit is contained in *ibid.*, pp. 491-492.

POLITICAL-ECONOMIC IMPERATIVES

The development of Soviet oceanic policy and the buildup of maritime capabilities have been further fueled by economic and agricultural problems in the U.S.S.R. Since World War II, the Soviet leadership has been under political pressure to increase the Soviet standard of living. This effort has been retarded by continuously poor performance of Soviet agriculture. As an alternative, the Soviet leaders have been forced to "turn to the sea"; the U.S.S.R. has built floating "fishing factories" in order to "harvest" and process oceanic catches. Illustrative of the increasing role of fish in the Soviet diet is the plan of U.S.S.R.'s leaders to shift their people from meat to fish by increasing internal consumption of the latter. For example, the sale of fish in 1976 is to be increased by 25 percent.¹¹ The disastrous impact of the low grain yields in 1975 will add urgency to Soviet plans; because meat may be scarcer than ever, the Soviet people will have to shift to fish regardless of their preferences.

Then, too, the Soviet Union has been under pressure to acquire its own large merchant fleet; the latter is needed both to carry Soviet goods as a way of conserving scarce hard currency, and to carry the goods of others as a way of earning such currency needed to finance the purchase of Western technology and know-how for use by the Soviet economy. The strength of the Soviet imperative to expand its merchant fleet is suggested by the fact that the build-up took place at some political and economic cost: because of its own limited shipbuilding capabilities, the U.S.S.R. has had to place orders with others, e.g., with East European shipyards. It would have undoubtedly preferred to have had the ships built at home.

POLITICAL AND FOREIGN POLICY DILEMMAS

While responding to the imperatives noted above, Soviet oceanic policy has been, and is, affected by numerous dilemmas and obstacles rooted in (a) Russian history and culture, (b) internal Soviet political system; and (c) U.S.S.R.'s attempt to be simultaneously a great power nation-state, a claimant to ideological leadership of the Communist world, and a moving force in the non-Communist developing world.

HISTORICAL AND DOMESTIC POLITICAL FACTORS

As a successor to landlocked Tsarist Russia, the Soviet Union does not have a long maritime tradition and experience to draw on in developing its oceanic policy and perfecting its maritime capabilities. This has necessitated developing among the Soviet people an awe for Russia's naval glory and a feeling for the seas, supplemented by appropriate training for survival in an unfamiliar environment. In fact, the Soviet regime feels compelled to thoroughly indoctrinate its youth in the traditions of the Russian Navy and the history of its exploits, even if the latter by comparison with the Western maritime powers are few, and then to cap the indoctrination by expositions on the growth of U.S.S.R.'s own oceanic prowess.¹² And after the

¹¹This is according to plans announced by N. Baibakov, Head of the Soviet Planning Agency (Gosplan), on Dec. 2, 1975.

¹²A description of typical indoctrination and training, focused on the Soviet youth in the Far Eastern Province, is contained in V. Goryunov, "Put' y Okean" (The Road to the Ocean), DOSAAF Publishing House, Moscow, 1974.

youth become sailors, they are exposed to long training cruises designed to give them sea legs and an at-home feeling on the oceans.¹³ Equally important, the Soviet regime feels the need to combat the worry and homesickness that develops in young sailors when they are far from native shores.¹⁴

Then, too, by expanding their ambitions to the oceans, the Soviet leaders have heightened a political dilemma. In general, they have always been nervous about any contact between their people and foreigners. This applies even more to activities that call for Soviet personnel to range beyond U.S.S.R.'s borders. The concern has been fed by numerous and continuing defections which have occurred in the post-World War II period.

In particular, the Soviet regime has been most wary about one of the most important groups in the Soviet system—its military. As a result of their experience abroad, the armed forces in some instances have become ideologically “contaminated” and have even provided the seeds of dissidence.

The regime's concern about the military stems from recent experience. In the final stages of World War II, the Soviet troops advanced into East Europe and were exposed to local economic conditions; as poor as these conditions were in comparison with those in West Europe or the United States, they were superior to those in the Soviet Union and accordingly affected the attitude of Soviet personnel. For example, Soviet soldiers, many of whom came from rural parts of the Soviet Union and were of peasant stock, saw first hand that even the poorest peasants in Poland or Hungary were in many ways better off than the richest *kolkhoznik*. Because they made unfavorable comparisons, these soldiers were not allowed to return directly or promptly to their homes at the end of the war. Instead they were first “decontaminated” by being sent elsewhere.

Because of this wartime experience, the Soviet leaders after the war isolated their forces abroad, e.g., in East Germany, Hungary, and Poland, in their barracks and did not allow them to have the free interchange that existed between American soldiers overseas and the local population.

The foregoing examples illustrate the source of Soviet regime's distrust of its citizens, whether in uniform or in civilian capacity. These indications of the regime's insecurity vis-a-vis the loyalty of its people evoke, in turn, a negative reaction from the Soviet people up to and including dissidence. The latter is most telling once again in the case of the Soviet Armed Forces. With their exposure to foreign influence, the latter have sparked active opposition. This is most applicable to the forces based in the Leningrad area. In recent years, the Baltic fleet has produced a number of dissenters, particularly from the ranks of the submarine officers who are the cream of an already elite group that makes up the Soviet Navy.

It should be noted parenthetically that recent dissent in the Baltic fleet draws on past history, both in the Soviet and the Tsarist context:

¹³ Soviet publications note that the training of Soviet naval personnel must concern itself with such minute details as to how to avoid or cope with seasickness. A detailed discussion of such training is contained in “Voina, Okean, Chelovek” (War, Ocean, Man), Voenizdat, Moscow, 1974.

¹⁴ Ibid., p. 107.

(1) The Decembrist uprising in St. Petersburg in 1825 was led by Russian officers who during the war against Napoleon marched to the West and were exposed to Western political ideas;

(2) Sailors of the Baltic fleet were the mainstay of the Bolshevik Revolution in 1917 (they could be considered lineal descendants of the Decembrists in terms of playing a major role in the uprising against the Tsar); and

(3) It was also these very same sailors who revolted against the Soviet regime at Kronstadt in 1921 because they believed Lenin had betrayed the revolutionary ideals (the sailors were brutally put down by the Bolshevik forces led by Tukhachevsky, who as a future marshal was ironically himself purged by Stalin in 1937 after becoming disenchanted with Soviet rule).

The foregoing historical background has particular relevance to U.S.S.R.'s oceanic policy: the regime has to depend on its personnel to implement the policy. But many of its people must of necessity operate beyond the Soviet borders and hence beyond the pervasive, internal control system. But, in being abroad, this personnel is exposed to "alien influences" and can, in addition to itself being affected, on return home "infect" the Soviet people. The Soviet regime's sensitivity on this score is reflected in commentary which warn Soviet personnel abroad against being taken in by seductive but false Western ideology and appearances.¹⁵

FOREIGN POLICY DILEMMAS

The U.S.S.R. also has foreign policy and ideological dilemmas related to its oceanic policy. These arise from its need on differing occasions to side "with" or "against" both the advanced nations of the West and the developing countries. In the process of building up and using its oceanic capabilities in pursuit of its great power aspirations, the U.S.S.R. (in common with the advanced nations) has developed a vested interest on oceanic issues such as preserving unrestricted passage of straits and limiting the expansion of territorial water claims. But this has put the U.S.S.R. in an unwelcome conflict with many developing nations, even though it would prefer, on the basis of ideological imperatives and competition with the West for influence among those nations, to lead them against the "imperialist" or "neo-colonial" West.

Their ambivalence on many oceanic issues of interest to the developing nations has exposed the Soviets to political exploitation by China, its archrival in both the Communist and the non-Communist developing world. Now that it has acquired a vested interest in common with the West, the U.S.S.R. is accused within the Communist world of having betrayed the revolutionary cause by siding with the West; within the non-Communist developing world, the U.S.S.R. is attacked for being unqualified to lead the developing nations because, as an advanced state, it cannot possibly understand their needs and promote their interests.

The Soviets have tried to counter the Chinese attack by joining the developing world in "anti-colonialist" votes against the West. But

¹⁵ For example, the main Soviet naval organ has noted that Soviet sailors in foreign ports are subjected to "attacks of bourgeois propaganda"; it calls for strengthening their vigilance and for preserving their "class feeling." (See "Morskoi Sbornik", No. 8 1975, pp. 7-10.)

in doing so the Soviets are caught in still another dilemma affecting their oceanic policy. Even as it expands its oceanic capabilities at the expense of the West in response to strategic and political imperatives, the U.S.S.R. has been forced to turn to that very same West for technology and know-how in order to help the Soviet economy improve its poor performance. The latter is due to the central internal problem: the Communist Party has maintained its pervasive control over the Soviet system even when this has had to be done at the expense of economic efficiency, as has been the case to date.

Of course, the problem can be solved by fundamental economic and political reform. But to avoid this and still mitigate the negative impact of their pervasive control over the economy, the Soviet Party leaders modified their policy toward the West in the early 1970's; among other things, they promoted detente to obtain Western technology and industrial management skills. In this situation, any large-scale U.S. response to meet their material needs would enable the Soviets to continue the current expansion of their oceanic capabilities by freeing their own resources for such a buildup. However, since such an expansion has been taking place at its expense, the United States may balk at providing the Soviets with the technological help that could be used to undermine its own interests.

FUTURE SOVIET POLICY

U.S.S.R.'S PERCEPTION OF REACTION TO ITS FOREIGN POLICY

A negative U.S. reaction at the level of technology might ultimately be only a part of a much larger, negative foreign reaction to the expansive Soviet policy. The Soviets already exhibit concern over such a possible reaction and perceive threats that objectively are nonexistent, yet reflect their views of possible developments, most particularly in the strategic area involving the question of national survival.

Thus, with regard to the two-front challenge, the Soviets conceive of possible collusion against them of China in the East and Germany in the West. The first seeds of this potential were sown, in Soviet eyes, in the 1960's when the strongly anti-Soviet Christian Democrats were in control of West Germany. In the Soviet view, the possibility of such collusion continues even though the Social Democrats may be, as they are currently, in power, particularly when the government is headed by such a tough-minded leader as Helmut Schmidt, an old opponent of the Communists.

The Soviet views of the German Socialist leaders must be put in an historic, but relevant context. The Social Democrats have always been the archrival of the Communists because they compete for support of the same group, the workers. The Social Democratic (SPD) leadership in general has been described as a capitalist tool, serving by its reform-like policies to divert the German workers from the true revolutionary path. And, SPD leaders such as Schmidt in particular have been described as uncompromising enemies of the U.S.S.R.

The current rapprochement between the U.S.S.R. and Germany, represented by Bonn's "Ostpolitik," has only temporarily muted Soviet distrust of SPD's intentions. Even so, the Soviets have taken due note, for example, of Schmidt's continuing championing of the main-

tenance of NATO's unity and strength and of his efforts to keep up Germany's own defense budget and its major role in NATO.¹⁶

Moreover, in the Soviet view, *Ostpolitik*, whether formulated by the Christian or Social Democrats, has the following long-term objective: by establishing supposedly friendly links in East Europe, Germany intends to undermine Soviet influence in the area and ultimately to obtain German reunification at the expense of Soviet interests.¹⁷

It is from the foregoing perspective that the Soviets have drawn their own conclusions about possible Sino-German collusion. In this connection, Schmidt's visit to Peking last November and the sentiments of parallel interests expressed by him and the Chinese on that occasion did not go unnoticed by the Soviets. And, to complete the picture, Soviet concern is further fed by China's urging NATO to retain its unity and strength against Soviet hegemony, thus paralleling Schmidt's views on NATO.¹⁸

Any full-scale Sino-German collusion could alone drastically step up Soviet alarm, given their almost irrational fear of a two-front threat. But compounding Soviet concern is the possibility that the Sino-German collusion could be widened to include Japan. However remote a possibility at this time, the Soviets do not exclude it, again in the light of their reading of past history which has seen Japan and Russia as bitter enemies. Even now, the Soviets are supersensitive to any Japanese contacts with China which the latter is deliberately trying to manipulate to its advantage against the U.S.S.R.

The Chinese at present are pressuring Japan to sign treaties that incorporate an expression of joint Sino-Japanese opposition to "superpower hegemony." While nominally intended to include the United States, the Chinese effort is directed against the Soviets and the latter have interpreted it as such. As a result, the Soviets are putting equal pressure on Japan to reject the Chinese overtures. But Japan is resisting Soviet pressure while not excluding the Chinese bid, and is thereby feeding Soviet concern. Prime Minister Miki categorically rejected a heavyhanded attempt by Soviet Foreign Minister Gromyko during his visit to Tokyo in January, 1976 to obtain a Japanese commitment not to include the "superpower hegemony" clause in any treaty with China.¹⁹ Japan's action has left it free to make whatever alliances it wants in the future.

Against the background of these and related developments, the Soviets view a future German-Chinese-Japanese combination as feasible because, among other reasons, all have latent or explicit territorial claims against the U.S.S.R. The Chinese, of course, have openly expressed their determination to regain ultimately the territories seized by the Russians under the unequal treaties of the 17th, 18th, and

¹⁶For a description of the basic Soviet distrust of the SPD and its leaders, see N. A. Trunin, "Militarizatsiya FRG i Politika Sotsial-Demokraticeskoi Partii" (The Militarization of the FRG and the Policy of the Social-Democratic Party).

¹⁷For a Soviet examination of the ulterior motives of Bonn's policy toward the U.S.S.R. and East Europe, see M. S. Voslenskii, "Vostochnaya" Politika FRG (the "Eastern" Policy of the FRG).

¹⁸The foundations and implications of Sino-German collusion are examined in A. I. Stepanov, "FRG i Kitai - istorii Otnoshenii, 1949-74" (FRG and China—On the History of Relations 1949-74), International Relations Publishing House, Moscow, 1974.

¹⁹See Washington Post, Jan. 14, 1976. In fact, Miki asserted Japan's intent to sign as soon as possible a peace treaty with China that includes such a clause.

19th Centuries.²⁰ Relevant, too, is the fact that Japan has continually pressured the Soviets in the post-World War II period for the return of the four Northern islands seized by the U.S.S.R. in 1945.

The pressure on the Soviets for territorial satisfaction, added to their perception of other common interests of Germany, Japan, and China such as economic affinity and the trio's historical antipathy toward Russia, shapes the Soviet image of possible future parallel, if not common, military policy against the U.S.S.R. Having itself formed strange, seemingly incompatible alliances with these very same nations in the past, the U.S.S.R. attributes to them the ability to similarly unite for reasons of expediency.

Finally, overarching all these combinations is the possibility, in the Soviet view, that the United States could join the above-noted trilateral combination, either voluntarily or by entrapment of previous commitments. This would lead to the most traumatic Soviet strategic nightmare: U.S. nuclear-missile power linked to Chinese, German, and ultimately Japanese groundforces.

Soviet concern over each collusion possibility, however unrealistic or unimaginable it may appear to an outside observer, has already been articulated by them. Indeed, it has served as part of the Soviet-asserted rationale for the need of the sizeable military capabilities the U.S.S.R. has developed to date. On this score, the Soviets have asserted that no nation in the world has suffered the war ravages that the U.S.S.R. has; moreover, no nation potentially confronts more threats than the U.S.S.R. or has more cause to seek strategic insurance against suffering a repetition of the damage it received in World War II.

Euphemistically, the Soviets describe the danger to the U.S.S.R. as stemming from the need to safeguard the "gains of socialism" since World War II, which are now threatened by an "adventurist" policy of "imperialism." The latter is losing its grip under the pressure of the socialist world, led by the U.S.S.R. Given its social and economic superiority, socialism is leading to large-scale social break-up of the capitalist world. Unable to face this, the latter is making a tremendous effort to undermine the U.S.S.R. The military danger, say the Soviets, is heightened because for the first time in history, "imperialism" has succeeded in creating military-political alliances on an international scale, even though these alliances have sharp internal contradictions. Moreover, the "imperialist camp" possesses modern weapons which threaten all. And, despite U.S.S.R.'s "peace-loving" policy, not a single socialist state has escaped persistent efforts of capitalist interference up to and including open military attack.²¹

It is in this context that the Soviets imply that they need forces, including oceanic capabilities, stronger than that of anyone else to meet the range of potential threats arrayed against them.

²⁰ Soviet concern over Chinese pretensions has triggered not only a massive transfer of military power (45 divisions) to the China border but also an elaborate defense of the legitimacy of their territorial annexations under the Tsar. The latest and one of the most detailed Soviet rebuttals of Chinese claims is contained in a 288-page volume by A. Prokhorov, "k Voprosu O Sovetsko-Kitaiskoi Granitse" (On the Question of the Soviet-Chinese Border), Moscow, 1974. This work is described as an analysis of the legal groundlessness of "Maoist territorial pretenses."

²¹ For an example of Soviet rationale on the threat to the U.S.S.R., see E. Sulimov, "Zashchita Sotsialisticheskogo Otechestva" (Defense of Socialist Fatherland), Moscow, 1970, in particular p. 14 and p. 17.

FUTURE SOVIET BEHAVIOR

Yet in acting on these claims within the framework of an expansive foreign policy, the Soviets could trigger an actual combination which is only a figment of their subjective imagination at this time. But should the political-military combinations that now concern them actually begin to form, the Soviets would undoubtedly react as they have in the past: attempt to disrupt such alliances by making expedient deals with one or another of the several members.

Even now, in recognition of a two-front threat and challenge by the United States, the U.S.S.R. has attempted to defuse its disputes with some adversaries (such as the United States and West Germany) in order to concentrate its energies on facing what it considers to be the more immediate and direct threats (such as the one posed by Communist China) and avoid confronting all rivals simultaneously. The practical effect of *détente* with the United States and Ostpolitik with West Germany to date has been to give U.S.S.R. breathing time to build up its capabilities in the East against China.

This general strategy is in line with traditional Soviet behavior. Historically, the Soviets have calmed disputes on one front while turning to face a challenge on another. This occurred, for example, in the late 1930's when the Soviets signed a nonaggression pact with Nazi Germany to forestall an attack from the West at a time when they were fighting Japan in the East; then, on the eve of the Nazi attack in June 1941, they signed a Neutrality Pact with Japan in order to forestall the latter from joining Nazi Germany in a simultaneous attack on the U.S.S.R.

But until a full-blown, "worst case" combination of United States, China, Germany, and Japan develops (if it ever does in fact) the Soviets are likely to continue their expansive foreign policy.²² In turn, their activities abroad will undoubtedly include even greater use, and the resultant need for continuing the buildup, of their oceanic capabilities since that policy has in the first instance provided the major impetus for the buildup and the employment of such capabilities.

IMPLICATIONS

In sum, the current Soviet oceanic policy has been developed in response to foreign policy, strategic, and domestic political-economic imperatives. This policy has radically transformed the U.S.S.R. from a landlocked insular nation to a global competitor of the United States, as demonstrated by the appearance of Soviet capabilities on all the oceans of the world. Yet this transformation has given rise to political dilemmas and strategic dangers which may limit the benefit the U.S.S.R. may derive from its new status as an oceanic power. It would seem appropriate for the United States to take note of

²² Indeed, they may do so even when they should prudently desist to prevent the worst from materializing; they have miscalculated in the past and this constitutes a danger to all concerned. It should be noted, however, that Soviets clearly want to avoid any miscalculations which could be fatal to them in the nuclear era. Thus the Soviet military have in recent years been studying how wars broke out in the past, particularly those which the weaker parties, in defiance of logic, initiated against the stronger. This has current relevance because the Soviets now consider themselves stronger than anyone else, possibly not even excluding the United States. (The U.S.-Soviet strategic relationship is noted these days in the following terms: "the correlation of forces" has shifted heavily in favor of the "socialist world.") Given the nuclear dangers, they presumably would be more sensitive in the future than they were in the 1930's to triggering a hostile alliance against themselves.

both the Soviet achievements and constraints so that it neither underestimates nor overestimates Soviet capabilities on the oceans to the detriment of its own interests.

ALTERNATIVE U.S. RESPONSES TO SOVIET OCEAN POLICY¹

(By Seyom Brown*)

An effective and prudent response to the ambitious ocean policy of the Soviet Union should be based on an assessment of how Soviet use of the ocean can affect the broad range of U.S. interests. Since U.S. and Soviet ocean policies are involved in a close feedback relationship, an accurate assessment of the implications of Soviet maritime behavior for U.S. interests must be informed by an appreciation of the ways U.S. and Soviet actions in this field affect one another. U.S. policy alternatives reflecting this interactive process can be described under three headings: (a) arms race vs. arms limitation, (b) restrictive vs. overlapping deployments, and (c) unilateralism vs. bilateralism vs. multilateralism.

ARMS RACE VS. ARMS LIMITATION

It has become evident that the Soviets no longer feel they must accept a condition of naval inferiority vis-a-vis the United States.² Consequently, a push by the United States to maintain supremacy over the expanding Soviet fleet is most likely to accelerate the naval arms race, just as a Soviet drive to attain naval superiority must engender a crash augmentation of the U.S. Navy.³ The only outcome that realistically can be expected from such competition is a kind of crude superpower parity in naval arms, but with considerably more weapons than would be in their inventories had there been an agreement (even tacit) to accept parity.

What are the costs of a full-blown U.S.-Soviet naval arms race? Surely some billions of dollars annually added to the naval program that might have been saved if parity could be stabilized at lower levels. Perhaps some multiple of this additional expense—in the form of general increases in the defense budget resulting from the revival of Cold War attitudes that would be a necessary correlative of the full-blown naval arms race. Less tangible, but of greater consequence than the defense budget increases, would be the greater risks of superpower confrontations associated with the revival of the Cold War.

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¹ The author is indebted to Barry M. Blechman, Robert Weinland, Larry Seagquist, and Ann Goodman of the Brookings Institute for comments on earlier drafts. However, the views expressed here are solely those of the author and should not be attributed to the Brookings Institution or other individuals associated with it.

² Congressional Research Service, Library of Congress, "Soviet Ocean Activities: A Preliminary Survey" (Washington, D.C.: GPO, 1975).

³ The position that the United States should attempt to maintain naval supremacy was well articulated by Secretary of the Navy J. William Middendorf II in a speech before the American Legion on Aug. 15, 1975. For the text see "Vital Speeches of the Day" Vol. XXXXI, No. 23 (Sept. 15, 1975), pp. 706-708.

Some may argue that support for detente is on the wane anyway in both countries, and the growing Soviet-American competition in naval arms is merely the symptom of their underlying protracted power rivalry. Acceptance of this argument, however, should not dispose of the need to conduct the power rivalry at least cost and danger to the United States.

Are there any benefits from a full-blown U.S.-Soviet naval arms race? The two superpowers might each hope for international gains from their bilateral naval competition, because even though neither can dominate the other, their need to keep up with each other will continue to stimulate fleet modernization programs on both sides. In a world characterized by heightened competition among many countries for ocean resources, a first-class global naval capability against third parties may come to be regarded by each superpower as not just a bonus from their bilateral rivalry, but one of the animating premises of the naval program in both countries.

Nor can we ignore the uncomfortable truth that a dramatic U.S.-Soviet naval arms race probably would have more of a stimulating effect on U.S. arms programs than on Soviet programs because of the greater extent to which the resource allocation process in our representative political system is affected by popular sentiment. This being the case, it would seem that the Soviets would want to avoid a visible naval competition. But Admiral Gorshkov also needs to battle for his bite of the defense ruble, and it would be surprising if he did not look with some pleasure at the growing agitation here to beef up the U.S. Navy to meet the growing Soviet naval threat.⁴

Despite the tacit interaction between navy champions on both sides, there are obvious asymmetries in the domestic political requirements for maintaining a strong military posture. This is not the most readily admitted reason in the United States for opposing arms limitation agreements and/or an atmosphere of detente that reduces anxiety about the Soviet threat. But there may well be a significant tradeoff, albeit intangible and difficult to calculate, between (a) the budgetary savings and reductions in U.S.-Soviet hostility that would be associated with an effort to stabilize the superpower naval arms competition, and (b) the stimulus that an open and tough naval arms race would give to the popular support needed to sustain the long-term power rivalry with the Soviet Union.

If it is decided that the prospective benefits of mutual naval arms limitations outweigh the hypothetical negative effects of the presumed loss of American "will," U.S. policy will still need to hedge against the Soviets deploying naval capabilities that suddenly appear substantially better than ours. As in the strategic arms field, the hedges probably should be in the form of impressive research and development programs, and the American public will have to be educated to accept at least this much as a necessary condition of naval arms control.

Some may doubt the desirability and feasibility of negotiating a naval parity agreement with the Soviet Union, given the different

⁴For insight into the ways in which the Soviet Admiral of the Fleet uses arguments about U.S. strategies and capabilities to buttress his pleas for an expanded Soviet navy, see Robert G. Weinland, Robert W. Herrick, Michael McGwire and James McConnell, "Admiral Gorshkov's 'Navies in War and Peace,'" *Survival*, Vol. XVII, No. 2 (March/April 1975), pp. 54-63.

geopolitical circumstances and naval strategies of the two superpowers: The United States, almost an island in the great world ocean, its major allies overseas, its foreign commerce mainly via maritime transport; the Soviet Union, virtually landlocked and icelocked, its major allies on its Western land frontiers, its main passages to the sea through narrow waterways bounded by other countries, and most of its foreign commerce traditionally over land. The established naval strategy of the United States being to control the seas; the apparent Soviet objective in recent years being to deny us this control.

In light of these strategic asymmetries, what could possibly be the operational meaning of "parity"?

What may be needed is a reconceptualization of the basic naval objectives of both the Soviet Union and the United States, which in turn could provide the basis for a workable concept of naval parity. For either power to strive for control of the seas and the other to attempt to deny such control is to stage a zero-sum game (one's gain is the other's loss and vice versa) incompatible with stabilized arms limitation. But if *access* to and *use* of the ocean, rather than control, were the objectives on both sides, the U.S.-Soviet maritime relationship could be conceived of largely in non-zero-sum terms which would be compatible with naval limitations under a concept of gross parity.

In the strategic weapons field, the recognition that both sides without agreement already had achieved a condition of gross parity provided a context for the SALT agreements on numerical limits in certain categories of weapons. But this codification of gross parity would not have been possible without the willingness on each side to accord legitimacy to the other side retaining an awesome second-strike capability. Similarly, in the naval field (beyond strategic submarines for which parity already has been legitimized in SALT), a recognition that both sides will be achieving, outside of any formal agreement, a condition of gross parity in their capabilities for access to and use of the great world ocean could form the basis for a mutual legitimization of such capabilities. Translating such a basic accord into precise agreements on inventory limitations in various naval categories will not be easy, but it should be no more difficult than the attempt to agree on arms limits on the European continent.⁵

RESTRICTED VS. OVERLAPPING DEPLOYMENTS

Intersecting the arms race/arms limitation issue is the question of what should be the U.S. policy toward the drive of the Soviets to establish a global maritime presence. Clearly, the only way to contain the Soviet maritime presence to less than global perimeters, given the rapidly developing Soviet capabilities for global access, would be for the United States to maintain overwhelming naval superiority and a credible strategy of confronting the Soviets should they venture beyond the perimeters we had unilaterally proclaimed. But if the naval supremacy policy is no longer feasible for the reasons indicated above, then such a maritime containment policy also has become anachronistic. This leaves two major U.S. policy alternatives for

⁵For some suggestive approaches to such limitations on naval inventories see Barry M. Blechman, "The Control of Naval Armaments" (Brookings Institution, Washington, D.C. 1975), pp. 11-30.

responding to the new maritime reach of the U.S.S.R.: (1) efforts to achieve agreement on areas where maritime deployments would be restricted in certain categories to one or both superpowers; or (2) acceptance of each other's deployments in most areas of the ocean.

AGREED RESTRICTIONS ON DEPLOYMENTS

The designation of regions of the ocean where particular superpower maritime deployments would be restricted could take either or both of two forms: (a) tacit or explicit agreement between the superpowers on areas in which one would concede a dominant (in some cases exclusive) presence to the ships of the other; or (b) agreement, probably explicit, between the superpowers and other states to keep certain categories of ships and/or activities out of particular areas.

The first form of restrictive deployment is analogous to the spheres of superpower dominance in Western and Eastern Europe that characterized the height of the Cold War. Such unchallenged spheres of naval dominance have in fact prevailed in the Baltic, Barents, and Black seas for the Russians; and the Mediterranean (before 1967), most of the Pacific, most of the Atlantic and the Caribbean for the Americans. They also have generally prevailed in the territorial waters and ports of military allies and client states of either superpower. Recently, however, with the disintegration of the extended Cold War coalitions, the rise of neutralism, and the accompanying efforts of smaller states to maintain commercial and political relations with both superpowers, an agreement on spheres of naval dominance does not appear to be a viable basis for global maritime coexistence between the United States and the U.S.S.R.

The second form of restriction on deployments is contemplated in proposals to limit the numbers and types of Soviet and U.S. warships in zones of confrontation such as the eastern Mediterranean or to keep Soviet and U.S. naval vessels and military facilities out of the Indian Ocean and its littoral areas.⁶ A variant of this form of restriction would feature specially designated lanes for warships and commercial vessels navigating the coastal waters or straits of other states; such restrictions are likely to emerge out of the Law of the Sea negotiations, as are coastal-state restrictions on oceanographic vessels and installations.

Two considerations need to be distinguished: One is how the U.S.-Soviet competition may be affected by such deployment limitations. The other is the significance of such limitations for relations between each of the superpowers and third parties.

One objective of superpower maritime limitations in specific areas of the ocean is to reduce the risks of U.S.-Soviet confrontation in zones of tension. Another objective may be simply to prevent a superpower naval race in a particular area, say, the Indian Ocean, even though the area itself may not be the locale of any important conflict between the U.S. and U.S.S.R.

It is questionable, however, whether the best means of avoiding dangerous confrontations in zones of high tension, for example, the Middle East, is a mutual limitation on naval deployments. If one

⁶See Blechman, "The Control of Naval Armaments", pp. 31-71, 99-100.

superpower has easier air or land access to a zone of confrontation, the best way to reduce that superpower's temptations to intervene locally with military force may well be for the opposing superpower to deploy impressive naval forces in the area. The *option* of the distant superpower to build up and then reduce its regional naval deployments on an ad hoc basis may be more conducive to tension reduction than presumably symmetrical naval limitations in areas of tension.

The Indian Ocean is probably the leading candidate for attempts to limit superpower naval deployments in the hope of avoiding an unnecessary arms race. Neither the United States nor the Soviet Union requires the Indian Ocean as a deployment area for maintaining an adequate global balance of military power against the other. And the Indian Ocean littoral is not yet a central arena of the superpower rivalry. Moreover, the littoral states have asked that the superpowers make the Indian ocean a "zone of peace."

Both the United States and the Soviet Union, however, are dragging their anchors in resistance to an Indian Ocean arms limitation agreement, let alone a complete military disengagement; rather both are proceeding apace to enhance their naval deployments and facilities there, each citing the unilateral increases of the other as justification for its own augmentations.

Although the superpower naval competition in the Indian Ocean (like their competitive arming of Angola factions) may emanate from national interests on each side that are external to the main U.S.-U.S.S.R. power rivalry, the local competition can persist and become a special arena for that rivalry. The Soviet Union's deployments, including its maritime facilities in Somalia, are important aspects of its effort to counter China's suspected drive for influence in South Asia and Africa. Thus it is hardly likely that the Soviets would be willing to substantially reduce their own presence, even if the United States indicated enthusiasm for an Indian Ocean disengagement agreement. The latter is an unlikely development in any case, since U.S. naval deployments in the region (to be sustained by the base at Diego Garcia) are part and parcel of the U.S. interest in maintaining military capabilities that could be focused on the Persian Gulf or on attempts to interfere with Western or Japanese tanker traffic through the Indian Ocean.

Perhaps some restraint on superpower deployments in the Indian Ocean could be effected by a dialog between them to clarify the purposes of their respective policies in the region. Additional restraint might come from an agreement on overall naval inventory limits that did not formally restrict deployments in any theater: i.e., each side would continue to be free to make its own regional allocations under a global ceiling. Since a drawdown on deployments in one theater to increase naval power in another theater could not be redressed by inventory increases, there would be disincentives to superpower militarization of nonvital ocean areas.

MUTUAL TOLERANCE OF OVERLAPPING DEPLOYMENTS

Probably the most realistic response to the expanding Soviet maritime presence would be a flexible attitude on both sides to the

fact of overlapping U.S. and Soviet deployments around the globe. With both sides sustaining worldwide ocean commerce and communications, each would grant the other a legitimate national interest in worldwide naval access. Such mutual tolerance has been evolving gradually without any formal agreement. The suggestion here is that this trend should continue even in the face of a more visible Russian presence in areas where they previously were strangers or occasional visitors, but the United States at the same time should indicate it expects reciprocal tolerance by the Russians in areas near the Soviet Union, especially the Arctic, which technological improvements are making more accessible to us.

This would be the opposite of an ocean spheres of dominance policy. Its major virtue is that it would redefine as "normal" (and therefore nonthreatening) what is occurring anyway, thus reducing one possible generator of a full-blown naval arms race: the mutual paranoia that otherwise would be stimulated by "penetrations" of what were thought to be the ocean preserves of one or another of the superpowers. Additionally, this approach could dampen what otherwise might be a revival of intense recruiting of Third World coastal-state clients for exclusive porting and maritime maintenance facilities. If the provision of maritime privileges to one superpower would not exclude or alienate the other, incentives would be reduced for the United States and the Soviet Union to intervene in the Third World to assure that governments would be in friendly hands.

A generally relaxed attitude by both superpowers toward one another's ubiquitous presence in the ocean might also provide a basis for slowing down the current attempts to divide up much of the ocean into exclusive jurisdictions. By example, no less than by coordinated diplomacy, the superpowers might engender some hope of averting the transformation of the ocean into an arena for new boundary wars and imperial conflicts. The United States and the Soviet Union both have high commercial and security interests in preserving extensive international rights of navigation. Additionally, as the leading oceanographic countries, they both are concerned to avert coastal-state restrictions on the activities of maritime scientists. By showing a willingness to accommodate to the presence of even each other's vessels and installations, the superpowers would be reestablishing the norm that the ocean is an international commons open to all for peaceful use. Moreover, the two superpowers would be asking other coastal states to grant them privileges of access no greater than they were asking of each other.

UNILATERALISM VS. BILATERALISM VS. MULTILATERALISM

Most of the policy alternatives I have discussed here would require considerable bilateral coordination, if not explicit agreement, between the United States and the U.S.S.R. This is not to say that Soviet capabilities and intentions should be the only frame of reference for U.S. naval programs. U.S. shipping and general ocean access could, of course, be disrupted from other quarters and therefore, whatever the course of the bilateral relationship with the U.S.S.R., the United States must maintain sufficient flexibility to unilaterally decide where and in what strength to deploy its naval forces. But even where

the extent of U.S. and Soviet naval deployments are determined in part by considerations beyond their bilateral rivalry, such as in the Persian Gulf, the Indian Ocean, or the northwest Pacific, the two superpowers will continue to size their respective forces primarily with reference to each other's strength. Negotiations to limit naval deployments in particular regions should include at least the local littoral states as well as the superpowers, but as in other multilateral arms control negotiations (such as the nonproliferation treaty, or the seabed arms limitation agreement), a superpower consensus usually will be the necessary precondition for the multilateral agreement.⁷

When it comes to general ocean regime issues, however, neither the United States nor the Soviet Union separately or together, or for that matter in concert with the other major maritime powers (the United Kingdom, France, and Japan), swing a determining weight. As has become evident in the Law of the Sea negotiations, the acquiescence of the majority of some 130 coastal countries has become crucial to the exercise of U.S. ocean mobility. The real and immediate threats to our basic geopolitical interests in access to foreign sources of energy and other raw materials, to commercial partners, and to military staging areas come from this quarter rather than from the Soviet Union. Indeed, on many of the general ocean regime issues, the United States and the Soviet Union find themselves partners in a minority coalition against the coalition Third World of coastal states. But paradoxically, while a split between the United States and the Soviet Union on issues affecting general maritime mobility could play into the hands of the coalition of coastal states, evidence of close concerting by the superpowers on Law of the Sea issues tends to strengthen the influence of militant coastal-state nationalists. China, as might be expected, loses no opportunity to condemn any common front by the Soviet Union and the United States, and tries to find examples of "superpowerism" in most of the positions taken by the maritime-state minority.

Considering the broadening array of countries with capabilities to severely impede U.S. access to and use of the ocean, and given the coalition politics of the Law of the Sea conference, a multilateral orientation to most aspects of general U.S. ocean policy has become essential. Yet the omnipresence of U.S.-Soviet ocean relationships cannot be avoided. This tension between the multilateral and bilateral dimensions of U.S. ocean policy is likely to complicate U.S. ocean diplomacy and policymaking in the years ahead. In some respects the problem is analogous to the tensions between bilateralism and multilateralism in efforts to negotiate strategic arms limitation agreements with the U.S.S.R., where the United States pays a price in relations with its NATO allies for pursuing agreement with the Soviets in direct negotiations.

These observations on policy alternatives generated by the coming of age of the Soviet Union as a maritime power are meant to pose questions rather than to prescribe. But they do point to at least one policymaking imperative: namely, the need for a continuing in-

⁷ Restrictions on U.S. and Soviet naval deployments may not always reflect the preferences of the superpower nor should the superpowers expect always to be included as negotiating parties to regional naval arms limitation agreements. The Shah of Iran, for example, has proposed a Persian Gulf security pact among the gulf states that would compel the removal of the naval and military presence of all outside powers.

tegration of U.S. ocean policy with other aspects of U.S. foreign policy—military planning, arms control, foreign economic policy, Law of the Sea negotiations, and international organizational affairs—at the highest levels of the U.S. Government. For what happens to the prerogatives of nations in the ocean during the next few years is likely to have as massive an impact on international relations over the next century as the rivalry for colonial possessions in previous centuries has had on contemporary international relations.

HISTORICAL CONTINUITY IN RUSSIAN AND SOVIET OCEANS POLICY*

(By Nicholas G. Shadrin with assistance from Pamela Houghtaling**)

OVERVIEW

The Oceans Policy of Soviet Russia effectively became worldwide under the aegis of Nikita Khrushchev in the late 1950's. The earlier Soviet and Tsarist policy had largely been confined to the Eurasian land mass. The change in policy may have been more related to an increase in Moscow's capacity to extend its reach than its desire to do so. There are a number of elements of historical continuity of Tsarist and Soviet ocean policy, especially as relates to naval power, the desire to extend power beyond the borders as far as possible may be one such continuous policy.

At the same time when faced by choices between security of the motherland and foreign extensions of power, the choice has continuously been to favor domestic interests. Thus, the defensive capability of naval power has always occupied, and continues to occupy, a leavening force on the offensive naval outreach.

Merchant marine, fishing, oceanographic and other oceans interests likewise have their historical continuity. With sharply rising economic needs and capability, the elements of continuity in the civilian arena is less pronounced than in the naval realm.

This section surveys the historical development of the key aspects of Russian and Soviet maritime power: navy, merchant marine, shipbuilding, fishing industry, river transport, oceanography, and mastering of the world's unique Northern Sea Route. Naval growth and development have been dominant throughout Russian and Soviet maritime history. For this reason, particular emphasis is given to the historic role of the navy.

INTRODUCTION

Prerevolutionary Russia had a relatively well developed shipbuilding industry characterized by three distinct features: specialization in naval construction, extensive control by foreign capital, and dependence (and often far beyond necessity) upon foreign technology. Often more profitable, naval construction programs monopolized Russia's shipbuilding capacity, resulting in the production of very few merchant marine vessels. Aware of the need for commercial ships for trading purposes, the Soviet Government subsequently attempted to increase

*[Editor's Note: Nicholas Shadrin's paper is based on his doctoral dissertation on "Soviet Maritime Power", submitted to George Washington University in June 1972, which draws some of his observations from his experience as a Soviet naval officer and a student of maritime developments within the Soviet Union.]

**Ms. Houghtaling was, at the time of drafting the paper from Dr. Shadrin's dissertation, a researcher with the Congressional Research Service, Library of Congress.

their construction. However, naval construction still retained priority. Prior to World War II, a program for shipyard restoration, primarily for naval construction, was initiated and a number of new major shipyards were built.

In the mid-1950's, a significant change in the allocation of shipbuilding capacities resulted from the introduction of nuclear submarine construction and the termination of the construction of a large series of cruisers and conventional destroyers. Until that time, the development of the Soviet merchant marine was dictated mainly by the internal economic needs and demands of Soviet foreign trade, which were not substantial. However, the allocation of more facilities for commercial shipbuilding, together with increased orders abroad, brought about the rapid development of the Soviet merchant marine. Thus, throughout Russia and the first half of Soviet history, naval construction dominated the shipbuilding industry until the redirection of building programs freed some shipyards for commercial construction.

Continuing policy interest has also been evinced in the areas of fishing, river transport, oceanography, and the Northern Sea Route. In addition to its fishing industry, prerevolutionary Russia had a fairly well developed inland water transport system necessitated by its vast territory and poorly developed land transportation. Russian oceanographic expeditions date as far back as the reign of Peter the Great (1725). The economic and strategic value of the Arctic region was recognized by the Russian Government and by its Soviet successor, which reiterated the Russian claim to the territories.

Throughout history, the Russian and subsequent Soviet Government has actively pursued an interest in maritime power and development. However, more urgent political and economic demands often assumed priority over oceans policy objectives. And, maritime improvements required the achievement of a certain minimum level of marine technology, which was often absent. Faced with a choice of the security and development of the homeland or extension of their power to the Seven Seas, they usually chose the former. This is not to say that they did not continuously prefer both.

THE HISTORICAL DEVELOPMENT OF THE NAVY

The extensive Russian naval history which dates back more than a thousand years was initiated with a drive to have access to the open sea. Impetus for naval construction was provided during the reign of Peter the Great (1672-1725). The year 1696 witnessed the creation of the basic Russian Navy. Extensive ship construction along with the construction of fleet bases was initiated. In his drive to secure a "window into Europe," Peter the Great opened access to the Baltic Sea. The development of the Russian Navy after the death of Peter the Great in 1725 depended to a large degree upon each ruler's attitude toward it. Its fortunes fluctuated, but in general the navy was an important element of Russian military power up to the Revolution.

The first half of the 19th century witnessed the beginning of a gradual replacement of sailing ships by steamships, a process which in Russia was delayed by technological backwardness. After its defeat in the Crimean War (1854-55) by the vastly superior British-French

fleet, Russia began an intensive modernization of its navy. Several types of armored ships—ironclad, armored steamers, large gunboats—were built. Russian preoccupation with mine-torpedo warfare resulted in the construction of the first minelayers and steamboats carrying torpedoes. The intensive shipbuilding program resulted in a rather strong naval force toward the mid-1860's. During the last two decades of the 19th century the Russian Navy was reinforced with a considerable number of newly built ships, including battleships and cruisers.

Russia's defeat in the Russo-Japanese War (1904–05) reduced its place from third to sixth as a global naval power. The defeat was particularly bitter to the Russian Navy, for it was the first large-scale battle lost in its 200-year history. However the defeat did not discourage the Russians. Shortly thereafter, a new program of navy modernization and buildup was launched. The naval buildup among leading maritime nations clearly demonstrated the increased role of sea power. The government appropriation for shipbuilding and reconstruction of shipbuilding yards grew steadily prior to World War I. But those amounts were too late and too little. When the war started, the Russian Navy had a preponderance of old ships, repeating to a large degree the sad experience of the Russo-Japanese War. Not a single ship visualized by the large shipbuilding program was ready.

When World War I started, the Russian Navy consisted of 9 battleships (predreadnought type), 4 battle cruisers, 6 cruisers, 36 destroyers, and 18 submarines, with additional vessels in each category under construction.¹ The Baltic and Black Sea battleships were completed during the war, but the majority of the planned ships were either never completed or never started. The prolonged construction of ships was explained by a shortage of material, a weak industrial base and great dependence upon foreign deliveries some of which were obviously stopped as soon as hostilities commenced and some purposely delayed prior to the war.²

Naval aviation was widely used during the war, particularly in the Black Sea. In addition, mine warfare was extensively used in the Baltic, the Black, and the North Seas. Both the Black Sea and Baltic fleets were also active in supporting the army's maritime flanks. The combat activity of the Russian Navy continued even after the first revolution in February, 1917, despite the fact that the command of the navy was gradually disintegrating and was being replaced by committees consisting of elected commissars. The October Revolution of 1917 put an end to the Russian participation in World War I.

By way of summary, it can be stated that at the time of the October Revolution, Russia had a well established naval tradition and a sizable navy, which managed to fulfill the basic tasks assigned to it, although not distinguishing itself in a major sea battle. The First World War interrupted the planned development of the Russian Navy. More than 200 years of Russian naval history had to its credit a number of considerable achievements as well as disappointing failures. The pre-Revolutionary Russian Navy had traditionally combined the innovative-

¹ "Istoriya Voenno-Morskogo Iskusstva" (History of Naval Art). Textbook for higher naval schools edited by Admiral S. E. Zakharov, Moscow, Boyenizdat, 1969, p. 104.

² This was the case with machinery for a battle cruiser, two light cruisers, and destroyers, machinery ordered in Germany. Surprisingly, a somewhat similar picture, though on a smaller scale, was repeated at the beginning of World War II.

ness and ingenuity of some of its officers with the backwardness of the economy supporting it and the incompetence and corruption of the administration. The established naval tradition served the future Soviet Navy well and represented a powerful base upon which the navy was restored, rebuilt, and developed.

At the time of the October 1917 Revolution, a great number of sailors sided with the Communists. Many naval units, particularly from the Baltic fleet, actively participated in the Revolution on the side of the Communists. During the civil war which broke out soon after the Revolution, the navy was active again. Some combat actions took place at sea. Treated by Soviet historians as important military contributions of the navy, these actions helped to resist allied intervention and thus protect the young Soviet republic. However, the sailors ashore acting as commissars, commanders, members of the newly organized secret police, and agitators played a much more important role. But the Red Forces did not enjoy a monopoly of the sailors' affection, as some supported the other non-Communist revolutionary groups.

The development of the Soviet Government under the Communist regime resulted in changes in naval organization.

The Council of People's Commissars decree, Jan. 29, 1918, signed by V. I. Lenin announced the disbanding of the Tsarist Navy and the creation of a new, workers-peasant Red Navy, based on volunteer service and elected commanders. In addition to the position of People's Commissar for Naval Affairs, occupied by sailor-Bolshevik P. E. Dybenko, the position of Commander of Naval Forces of the Republic was established in September 1918. Rear Admiral of the Tsarist Navy V. M. Al'fater, was appointed to be the first commander of the Soviet Navy. In December 1918, the Naval General Staff was organized.³

The civil war was fought on land, and naval forces under the command of the Soviet Government were employed exclusively to assist the Red Army maritime flank and also, as was the case in the eastern part of the Gulf of Finland, to protect the maritime approaches to the main centers. Many specialists of the former Tsarist Navy were employed, and during 1918-20, 7,605 mines were sown in extensive mine warfare.⁴

A number of river flotillas formed and manned by sailors at the Baltic and Black Sea fleets took an active part in the combat. At the beginning of 1921, when the civil war was practically over, the Soviet Navy presented a sorry spectacle. In the Black and the North Seas, retreating White Guards and intervening foreign powers took away 3 battleships, 10 cruisers, 64 destroyers, 30 submarines, and many auxiliary ships and transports. Actually, the fleets in the Black Sea, the Pacific, and the North ceased to exist.⁵ The Baltic fleet represented a "gathering of lifeless ships" moored to the docks and manned at only 20-40 percent of strength.⁶

³"History of Naval Art", p. 142.

⁴*Ibid.*, pp. 166-167.

⁵"Boyevoy put' Sovetskogo voyenno-morskogo flota" ("Combat Path of the Soviet Navy", hereafter referred to as "Combat Path"), Moscow, Voenizdat, 1967, p. 590.

⁶*Ibid.*, p. 147.

Most of the ships were badly in need of repair, but the navy's supply of spare parts was exhausted. There was no fuel and the greater portion of ship repair facilities were damaged, destroyed, or deteriorated. Added to the navy's desperate material condition was the problem of ideological reliability and the regime's trust in the navy.

The Tenth Party Congress resolved "to undertake measures for the restoration and strengthening of the Red Navy" subject to the "general conditions and material resources of the country." The congress also decided "to strengthen the navy with political workers, and to return to the navy all Communist seamen working in other fields." The decree signed by Lenin ordered the salvage of repairable ships sunk during the civil war and the repair of available ships.⁷ The intensity of the 1922 ship repair program, according to Lenin, had to be defined by "the size of the navy which was necessary to keep for political and economic reasons."⁸ During the 1921-24 period, two battleships, two cruisers, and a number of destroyers and submarines underwent major repair and entered the service.⁹

The first All-Union meeting of Communist seamen to discuss the problem of restoring the navy was called in Moscow in April 1922. While they discussed the nature of the future navy, participants rejected proposals of two opposing groups: one headed by a former Tsarist Navy specialist demanding construction of "an open sea fleet," e.g. in general a balanced navy built around super dreadnoughts, for "lack of money, production capacity, and human resources," and the so-called young school, demanding construction of a light navy, a "mosquito fleet," submarines, and aviation for its one-sided emphasis. It was stressed that a navy incorporating all classes of surface ships, submarines, and aviation and "acting aggressively in cooperation with the Red Army" was needed for the country's defense. A resolution also recommended the sale of old ships and the use of the money thus obtained for the speedy restoration of usable ships.¹⁰

The second state of the Red Navy development and the final stage of its restoration started in 1924. The years 1924 and 1925 are known as a period of "military reform" worked out by Frunze, who replaced Trotsky as chairman of Revvoensovet and the People's Commissar of Military and Naval Affairs. Approved by the April 1924 Plenum of the Party Central Committee, the military reform influenced the organization, personnel policy, training and hardware development of the Red Navy and Red Army.¹¹

Fleets, shore defense systems and naval aviation were united into the naval forces under a single chief. The military law approved September 18, 1925, established compulsory military service, and the duration of conscript service in the navy was set at 4 years. Starting in 1925 the gradual transformation to the one-man command system to replace the dual commander-commissar system was initiated in the Soviet Armed Forces. In the navy the process was particularly slow and exercised with great care, continuing until 1933.¹²

⁷"History of Naval Art", pp. 163-169.

⁸"The Combat Path", p. 148.

⁹"History of Naval Art", p. 169.

¹⁰"The Combat Path", pp. 149-150.

¹¹"Sudostroyeniye" No. 2, 1970, pp. 52-55.

¹²The number of so-called old specialists, former Tsarist naval officers, in the Navy was considerable and proportionally higher than in any other services. On the other hand, Party members represented only 27 percent of the naval officers. The special nature of the service was also taken into consideration. "Combat Path of the Soviet Navy", p. 196.

The October 1924 decision of the Council of Labor and Defense approved a shipbuilding program, authorizing major repair of a battleship, cruisers, and destroyers, as well as the completion of construction on ships laid down prior to the Revolution and found suitable for completion. Thirty-five million rubles were appropriated for ship restoration in 1925, and 64 million rubles, in 1926.¹³ The year 1925 was marked by more extensive combat training. For the first time, a squadron of ships headed by the battleship *Marat* with Frunze aboard entered the Baltic Sea and sailed to Kiel Bay where it anchored. During the year, Soviet Navy ships sailed a total of 260,000 miles, 159,000 in the Baltic Sea, 49,000 in the Black Sea, and 24,000 in the Far East.¹⁴

The first Soviet 6-year (1926–32) shipbuilding program authorizing the construction of 12 submarines, 18 patrol ships, and 36 torpedo boats was approved and successfully fulfilled.

When the second period of development ended in 1928, the Soviet Navy in general had recovered from the ordeal of the Revolution, the civil war, and the Kronstadt mutiny. Also at this time a system of organization and command was established, a number of documents defining principles of combat training and combat employment of the ships were produced, the majority of ships suitable for restoration were repaired and in commission, and the gradual construction of new ships had begun. The Soviet Navy had in commission 3 battleships, 5 cruisers, 24 destroyers, 18 submarines, and a considerable number of smaller combatant and auxiliary ships.¹⁵

Rapid industrialization of the nation, initiated in 1928 with the launching of the first 5 Year Plan, was an important factor in future naval development. During the years of the second 5 Year Plan, naval construction not only intensified quantitatively, but became more qualitatively diversified and sophisticated. When the second 5 Year Plan was completed, the Soviet Navy had in commission more than 6 times as many submarines, twice as many destroyers, 6 times as many aircraft and 3.5 times as many torpedo boats as in the last year of the first 5 Year Plan.¹⁶

In 1937 upon completion of the two 5 Year Plans, with their emphasis on heavy industry, despite great strains on the economy, the Soviet Union managed to increase naval construction. The decision to develop a "large sea and ocean navy" and to start the construction of ships of all types was made in 1937. A separate commissariat of shipbuilding was organized and a new shipbuilding program was approved in 1937. While the program visualized the continued construction of submarines and destroyers, it placed heavy emphasis on building battleships, heavy and light cruisers, and minesweepers.¹⁷

Realization of the new naval development program generated a shipbuilding boom. As a result, the total tonnage of the Soviet Navy

¹³"Shipbuilding" No. 4, 1971, pp. 45–48.

¹⁴"Combat Path", p. 160.

¹⁵"History of Naval Art", p. 169.

¹⁶S. Gorshkov in "Morskoy Sbornik" Nov. 7, 1963, pp. 9–18.

¹⁷"Sudostroyeniye" Nov. 4, 1971, p. 47.

surface fleet grew by 108,718 tons and submarines by 50,385 tons from 1939 to June 1941.¹⁸ As early as 1939 the Soviet Union had more submarines than any other country in the world. In fact, the Soviet submarine fleet was larger than those of Germany and Japan combined.¹⁹ The task to build "the open sea and ocean navy worthy of Soviet Union as a great sea power" was proclaimed. Molotov's statement to the First Session of the Supreme Soviet of the U.S.S.R. that the "mighty Soviet state should have an open sea and ocean navy corresponding to its interests and worthy of its great tasks" became a slogan. Minister of Shipbuilding Industry, I. Tevosyan, writing in *Pravda*²⁰ promised to move his industry from sixth place in the world in 1939 to first place between 1942-48.

The growing importance of the Soviet Navy was formally recognized by the establishment of an independent People's Commissariat of the Navy of the U.S.S.R. in December 1937 and by the organization of the Main Political Directorate of the Navy and the Main Naval Military Council.²¹ One of Stalin's top lieutenants, a member of the Politburo and Secretary of the Central Committee of the Party, A. A. Zhdanov, who since the middle 1930's had been responsible for naval development, was appointed as a member of the Main Naval Military Council.²²

During the 14 years of pre-World War I shipbuilding (1927 to June 1941) 433 ships (excluding torpedo and patrol boats and auxiliaries) were laid down. Of that number, 312 including 206 submarines and 106 surface ships (4 cruisers, 7 destroyer leaders, 30 destroyers, 18 escorts, 38 minesweepers, 1 minelayer, and 8 gunboats) were completed before the war started and commissioned. At the beginning of the war, 219 ships, including 3 battleships, 2 heavy cruisers, 10 cruisers, 45 destroyers, and 91 submarines were on the building ways. Twenty-three submarines were completed during the second half of 1941.²³

Soviet pre-World War II naval development has been differently assessed at home and abroad. The main controversy has been centered around the role of submarines in overall naval construction and the theory of their combat employment. For example, some claim that the submarines were underevaluated in theory and practice.²⁴ Others came to the opposite conclusion, claiming that submarines were the main striking force of the Soviet Navy.²⁵

It is hard to agree with either conclusion. The May 1928 decision of the Revvoensovet of the U.S.S.R., which discussed the role of navy in the military forces of the country, stated, "while developing the navy it is necessary to combine surface and submarine fleets, shore and mine position defense, as well as naval aviation in proportion corresponding to the character of combat operations."²⁶ The

¹⁸ "Combat Path", p. 166.

¹⁹ N. G. Kuznetsov, *Pravda*, July 25, 1939.

²⁰ *Pravda*, July 21 and 23, 1939.

²¹ "Combat Path", pp. 163-169.

²² N. G. Kuznetsov, "Nakanune (on the Eve)", Moscow, Voenizdat, 1966, pp. 221-222.

²³ "Voennno-Istoricheskii Zhurnal-VIZ" (military historical journal) No. 6, 1971, pp. 36-37.

²⁴ "Voennaya Strategiya" (military strategy), third edition, 1968, p. 168.

²⁵ "Combat Path", pp. 216 and 368.

²⁶ "VIZ", No. 6, 1970, p. 34.

naval development program incorporated into the second 5 Year Plan again emphasized close cooperation between fleet aviation and shore defense but some preference was shown to the development of submarines and heavy aviation.

In the late 1930's preference was given to surface ships, which were viewed as the nucleus of the navy. Submarines were supposed to act against enemy communications, and were viewed as the main forces to accomplish this task. The 1937-38 program was visualized as a program for the development of a balanced navy. Not a single Soviet pre-World War II program neglected submarine construction and each one planned and actually built more submarines than the previous one. Accelerated construction of surface ships became possible because of new shipbuilding capacities introduced in the mid and late 1930's, but by no means did it affect the construction of submarines. The fluctuation in the number of submarines built (6 during the first 5 Year Plan, 137 during the second 5 Year Plan, and 86 during uncompleted third 5 Year Plan) is explained by the construction in the third period of a larger number of more sophisticated classes of submarines, which obviously lengthened the average time for construction of one unit.²⁷

To summarize the pre-World War II development of the Soviet Navy, it should be stated that, with the exception of a short period of disgrace following the Kronstadt mutiny, considerable attention was devoted and effort spent to restore the available naval units, to organize naval forces, and to incorporate them into combined all-arms forces. Considering the exceptionally weak Soviet economy and the shortage of industrial capacities—which were overtaxed, the number of ships built and the even larger number laid down in the pre-war period is remarkably high. The initiation of the 1937-38 shipbuilding program borders on adventurism, for, apart from the demands of the civilian sector which had been traditionally neglected, the program was carried out to the detriment of the other services, including the army. Tremendous expenditures of money, production capacities, and steel for the program brought little benefit to the Soviet naval forces.

In 1941, the element of surprise achieved in the German attack on the Soviet Union and the fast advance of the German Army created conditions under which the traditional role of the Soviet Navy to support the Red Army's maritime flanks gained overwhelming importance. While German naval activity centered mainly around the air and mine warfare action in the Baltic and were nearly totally absent in the Northern region and the Black Sea, the retreating Soviet fleets still took considerable losses. This did not prevent the Soviet Navy from fulfilling their assigned task completely, but did reduce their effectiveness. The Soviet Navy was neither prepared, nor was there any necessity created by the opponent to contest the control of the sea in a strategic sense. With the exception of its challenge to the Allied convoy system in the North, German naval activity was marginal. The Soviet Navy was poorly prepared for antisubmarine warfare. Only toward the end of the war were antisubmarine forces

²⁷ Ibid., pp. 36-37.

increased and their equipment improved, thanks mainly to the Allied deliveries. Mine warfare was also extensively used, but the Soviet Navy, while improving toward the end of the war, was not at its best in this traditional form of warfare. The Soviet Navy of the war years could in no sense be called a balanced fleet. The construction of a considerable number of surface ships in addition to numerous submarines, particularly during the late 1930's, demonstrated the Soviet understanding of the concept of a balanced fleet in general, while, the lack of capability prevented its realization.

In 1946, the first postwar 5 Year Plan which was devoted mainly to the restoration of the economy, visualized: "1950 level of shipbuilding exceeding that of 1940 by two times," and "the development of a strong and mighty navy."²⁸ But, during the first 3 or 4 years, Soviet industry was in no condition to assure construction of the newly designed ships. Soviet Navy attempts to force the shipbuilding industry to begin the construction of new ships failed and the ships of pre-World War II design, whose shortcomings were revealed during the war, were built first. However, the development and the beginning construction of new destroyers and escorts, both with flush decks, and improved armament, started as early as 1950.

The postwar development of the navy was accompanied by traditional reorganizational measures and repressions which were particularly harsh under Stalin. On February 25, 1946, the People's Commissariat of the Navy was abolished. Four years later, February 25, 1950, the Naval Ministry of the U.S.S.R. was reinstituted in order to "focus attention on the speediest development of the navy." On March 15, 1953, the separation was ended, and the Ministry of Defense of the U.S.S.R. was formed unifying both the military and the navy ministries. Stalin's postwar order to have two fleets instead of one in the Baltic and Pacific was abolished in 1956.²⁹ Among other organizational changes was the abolition of a number of naval flotillas (White Sea, Danube, and Dneper) and the so-called naval defense districts.

In 1947, the top leadership of the navy was shaken by Stalin. However, while reaching the lower echelons of the navy structure, this wave of Moscow repression was not as disastrous as in the late 1930's.

Parallel to the shipbuilding activity, considerable research and development efforts were initiated in atomic weaponry, rocketry (missilery), electronics (radar, sonar, communications, and control), and propulsion. In 1950 aviation received the first free-fall atomic bombs. At the beginning of the 1950's nuclear warheads for torpedos and cruise missiles were developed. In 1953 the first hydrogen bomb was tested. Also, at the beginning of the 1950's the Soviet Union started the development of nuclear propulsion systems, and the construction of nuclear powered submarines.³⁰ Simultaneously, experiments were being conducted on a wide scale to employ closed-cycle engines for submarines.³¹ During the first half of the 1950's the Soviet Union conducted an extensive research and development program with various missiles, including those for the navy. The first elements of the navy for which missiles were developed were aircraft and the

²⁸"Combat Path", p. 585.

²⁹Kuznetsov, "Nakanune", pp. 276-278.

³⁰"Combat Path", p. 544, and "Morskoy Sbornik" No. 6, 1971, p. 18.

³¹"Combat Path", p. 542.

submarines. The first experimental launch of a ballistic missile from an obviously submerged submarine was conducted in September 1955.³² In bombers, a considerable number of jet aircraft were delivered to the navy.

Thus, during the first postwar decade, the Soviet Navy was reinforced with a considerable number of newly built ships, submarines, and aircraft. Many old and obsolete ships were decommissioned. A number of ships built just prior to World War II were modernized. Research and development efforts resulted in a number of successes in the nuclear field, missilery, and electronics. The first cruise missiles entered the service, more missiles were under development, and some had even been tested. In short, prerequisites were achieved for the future development of a qualitatively new navy on the basis of what the Soviets later called the "scientific and technological revolution in the military affairs."

By the mid-1950's, the Soviet Navy had become larger than any in the world except that of the United States, but qualitatively, particularly in the relation to the threat from the most likely opponent and in the relation to the tasks which it had to fulfill, the Soviet Navy was in no better position than that prior to World War II. Soviet Navy long-range forces were still in very short supply, while the forces for traditional mine-artillery position warfare were in abundance. The employment of submarines was planned independently from the main forces, the squadrons of surface ships, and the main tasks of submarines were preliminary, independent strikes against enemy forces.³³ Such forms of naval combat represented nothing more than the use of naval forces in the proximity of one's own shore, i.e. the forms typical for a coastal navy. But it was highly problematic that a potential enemy would be so obliging as to bring itself into position and subject itself to very powerful combined gunnery torpedo attacks. The main limiting factor, of course, was the absence of carrier-based aviation and the dependence upon land-based aviation of very limited radius of action (particularly fighters). It had become evident to the Soviet leadership, particularly to the military, that despite considerable resources devoted to the navy under conditions of a very tight economy, it was not going to fulfill its major tasks unless drastic changes were instituted. While apparently there was a mutual understanding of the necessity for change, what was desirable, was viewed differently by the various power groups. Except for the loud pronouncements of Khrushchev against large surface ships (which, considering the types the Soviet Navy had at the time, were basically correct) there is no indication whatsoever that the party leadership had turned antinavy. But some army leaders came very close to demanding the practical abolition of the navy, claiming that there were not many naval tasks (as they understood them) in which the army, with nuclear missiles, could not fulfill—including strikes against carriers (with long-range aviation) and against amphibious forces approaching a defense area.³⁴ Particularly strong attacks were launched against the surface ships and naval aviation. It was also claimed that the ground troops did not need the navy's support even

³² Ibid., p. 585.

³³ "History of Naval Art", pp. 564–565, and S. Gorshkov in "Morskoy Sbornik" No. 2, 1967, pp. 9–21.

³⁴ See S. Gorshkov, "The Development of Soviet Naval Art, Morskoy Sbornik" No. 2, 1967, pp. 9–21.

during amphibious operations and, thus, the amphibious ships and the naval infantry (marines) were obsolete and not needed.³⁵ The need for the submarines was never challenged by any group.

The period of the mid 1950's and the decisions made at the time resulting in "the decisive changes in the shipbuilding program in the direction of the creation of nuclear missile-carrying submarines, missile-armed surface ships, and ships armed with modern antisubmarine, antimine, and anti-aircraft weapon systems, and missile-carrying aviation" were crucial for the further development of the Soviet Navy.³⁶

The post-World War II period produced a drastic shift in the nature of threat to the Soviet Union from a potential enemy. While before the war the primary threat had been posed by the continental powers, after the war the Soviet Union had to face the coalition of Western powers headed by traditional naval powers "in whose armed forces special importance had, for a long time, been attached to the navy."³⁷ The formation of NATO with the United States as the chief ally, elevated the significance of the naval power even more. In addition to the direct maritime threat to the Soviet Union, Atlantic Ocean communications again became the arteries through which American military power would be delivered but in this case as reinforcement to the NATO. However, by the early 1950's except for the need to increase the Soviet naval forces along the familiar quantitative line to fulfill the traditional tasks, not much seemed to have changed for the Soviet Navy.

In the early 1950's, however, when American aircraft carriers were assigned the task of delivering nuclear strikes against the Soviet Union, the situation changed quite drastically. It became the prime task of the Soviet Navy to sink or even severely damage the attack carrier prior to the launch of the aircraft. The Soviets were convinced of a massive buildup in Western naval forces and the growing tendency to assign to the naval forces the role of one of the primary strategic weapons in a future war. Accordingly, the threat of an attack from the maritime direction had increased sharply and the defense interest of the country "demanded a considerable increase in the combat might of the Soviet Navy."³⁸ In short, while the Soviet shipbuilding industry was involved in the massive production of conventionally armed ships and submarines, the urgent need arose for a constructive revision of naval policy.

The death of Stalin in March 1953 released the Soviet naval planners from having to follow his arbitrary rule, and a more favorable atmosphere for objective discussion and evaluation of naval policy followed. Moreover, the physical characteristics of nuclear armament (size and weight) made it possible in the mid-1950's to consider delivery by a variety of means. This led to the problem of selecting the best carriers for nuclear armament, i.e., whether aircraft (and in what mode of operation, land based or carrier based) or submarines

³⁵ "Combat Path", pp. 545-546.

³⁶ *Ibid.*, p. 547.

³⁷ "Morskoy Sbornik", No. 2, 1967, p. 16.

³⁸ *Ibid.*

or surface ships; as well as the means for delivering nuclear weapons to the targets, i.e. bombs or warheads for torpedoes or missiles. The progress achieved in research and development of missilery indicated that rockets might soon become an important means for the delivery of nuclear weapons.³⁹ As was indicated earlier, of further consideration, was the definite progress achieved in the development of nuclear propulsion systems for submarines.

The crucial decision that changed the course of Soviet naval development was made in the mid-1950's. Following detailed discussions, the Soviets decided on the construction of an oceangoing navy, one that would be capable of conducting offensive strategic missions with an emphasis on submarines and naval aviation equipped with nuclear weapons. Of course, it must be realized that this decision established a concept which gave the green light, for the corresponding development of the Soviet Navy, but it would take years—more than a decade, for its final implementation. Neither the Soviet technological-industrial base was immediately ready for the concept implementation nor was the Soviet military theory, especially its naval art, adjusted to the concept.

DEVELOPMENT OF FORCES

SUBMARINES

Soviet naval construction started in the late twenties with submarines. The year 1936 was particularly productive, because the Soviet shipbuilding industry delivered to the navy the largest number of submarines. The tempo of submarine construction was such that, once in the summer of 1936 the Soviet Navy commissioned a whole brigade of submarines (six to eight units).⁴⁰ The development and alleged construction of submarines with closed-cycle engines was started prior to World War II.⁴¹ During the decade of the 1930's, the Soviet shipbuilding industry delivered 206 submarines to the Soviet Navy and 52 more were commissioned during the war.⁴²

The World War II experience of foreign and Soviet submarine operations were carefully studied in the Soviet Union. As a result, it became clear that submarines were in need of serious improvement in the areas of greater range and submerged speed, submerged depths and secrecy.⁴³ During the second half of the 1940's, the Soviet Union

³⁹ The progress with missile development in the mid-1950's made the Soviet Army so happy that its "influential authorities" decided to solve all problems including those associated with naval warfare, by missiles tipped with nuclear warheads. See "Morskoy Sbornik" No. 2, 1967, p. 11.

⁴⁰ G. M. Trusov, *Podvodnye Lodki v Russkom i Sovetskom Flote* (Submarines in the Russian and the Soviet Navy, 2nd Edition, revised and enlarged, Shipbuilding industry Publishing House, 1963, p. 440; See also Captain 1st Rank V. S. Bakov, "History of Soviet Submarines," *Morskoy Sbornik* No. 11, 1964, pp. 90-93; and Rear Admiral M. A. Rudnitskiy, "Soviet Submarines," *Morskoy Sbornik*, No. 7, 1967, pp. 20-34.

⁴¹ G. M. Trusov, p. 338. Except for the source, no confirmation or denial concerning the closed-cycle Soviet submarines developed during pre-World War II period could be found. However, during the first postwar years, an intensive test of closed-cycle submarine No. 401 was conducted in the Baltic. This, however, could be the result of Soviet knowledge of work by the German designer Walther.

⁴² "Morskoy Sbornik", No. 9, 1971, p. 29.

⁴³ See for example L.M. Yeremeyev and A. P. Shergin, "The Submarines of the Foreign Fleets in World War II." Operational and Statistical Materials Based on the Experience of World War II ("Podvodnyye lodki inostrannykh flotov vo vtoroy mirovoy voyne. Operativno-statisticheskiye materialy po opytu vtoroy mirovoy voyny") (Voenizdat, 1962); I. S. Isakov and L. M. Yeremeyev, "Transport Operations of Submarines" ("Transportnaya deyatel'-nost' podvodnykh lodok") (Voenizdat, 1959); S. A. Sherr, "Warships of the Sea Depths," (Korabli morskikh glubin) (3d ed., revised and enlarged Voenizdat, 1964); The lead article of Pravda of July 10, 1942, "Submarine Fleet—Pride of the Soviet People" (Podvodniy flot-gordost' sovetskogo naroda).

constructed a considerable number of small modernized submarines, while maintaining basically the submarine fleet of prewar construction. However, starting with the end of the 1940's, a new series of submarines improved in quality, were built. The diesel-powered W-class submarine was originally produced as an attack submarine armed with torpedoes and equipped with deck-mounted guns but these were later removed. Close to 200 units were built altogether; many were transferred to other countries but most, although aging, still remain in commission in the Soviet Navy. As is the case with all Soviet torpedo submarines, the W-class is capable of minelaying. Through various types of changes a true family of classes has emerged from the W-class. Apart from various conning tower shapes (of which there are at least five), the most important modifications of the W-class were in 1956 or 1957, when the first submarine of that class was converted into a guided-missile submarine. An erectable cylindrical housing for a guided missile was installed on the upper deck, and the new class received the NATO designation of W single-cylinder class.⁴⁴

The Z-class diesel powered submarine, of which a few dozen units were built, was originally built as an oceangoing long-range torpedo attack submarine. Although several modifications of this class became known, the most important was a conversion to ballistic missile submarines known as the Z-5 class. It was undoubtedly a modified Z-class submarine from which the first surface launching of a ballistic missile occurred in September 1955. Somewhat later, between 1956 and 1957 several units, each carrying a pair of surface-launched Sark ballistic missiles with a range of 300–350 nautical miles, were produced.⁴⁵

Starting in 1954 a few dozen diesel powered, closed-cycle propulsion system submarines, Q-class (Project 615) were built. This small (around 700 tons displacement) short-range submarine was intended primarily for antisubmarine warfare and carries four bow-mounted torpedo tubes. The closed-cycle propulsion system, at least during the first 3 to 4 years of operation, was less than satisfactory and dangerous to operate.

Soviet submarine development during the post-World War II period, and especially since the mid-1950's, seems to testify to an acute awareness, even a conviction, that the balance between surface ships and submarines in favor of the latter.⁴⁶

Construction of nuclear-powered submarines began in the late 1950's. As the era of battleships was replaced by the era of aircraft carriers during World War II, the fateful decision of the mid-1950's emphasized the submarine-aviation nature of the main naval striking forces in a future nuclear war. It should be stressed, that at the time the Soviets rejected using attack aircraft carriers as the main striking force, the Navy had neither a single carrier in commission nor any experience on how to build or operate them. The economic

⁴⁴Siegfried Breyer, *Die Sowjetischen u-Boote der "W"—Klassals Typfamilie* (The Soviet Submarines of the W-Class as a Family of Classes), *Soldat und Technik*, Nov. 1, 1971, pp. 10–15.

⁴⁵Lt. Com. Robert D. Wells, USN, *The Soviet Submarine Force*, "U.S. Naval Institute Proceedings", August 1971, and S. Breyer, *Neue kriegs der Sowjet-Flotte* (New and Modernized Warship Classes of the Soviet Navy) *Soldat und Technik*, Nov. 11, 1970, pp. 628–635.

⁴⁶For an interesting discussion of this problem, see Paul Cohen, "The Erosion of Surface Naval Power," *Foreign Affairs*, January 1971, pp. 330–341.

and technological feasibility to build them was clearly present in the mid-1950's, but it required 7 to 8 years before the first group of those ships and the aircraft for them could be developed, built, and initial operation experience acquired.

NAVAL AVIATION

The birth of Russian naval aviation dates back to the year 1912, when the first seaplanes arrived in the Black Sea Fleet. Up to 1914, the naval aviation units were equipped primarily with foreign-built seaplanes. During World War I most of the aircraft were Russian built. Of special note, is the "Il'ya Moromets" designed by I. Sikorskiy, who after the Revolution left Russia and continued his work in the United States. "Il'ya Moromets," the first multi-engined aircraft, was particularly well suited to meet the requirements of naval reconnaissance. In 1915, the Baltic and Black Sea Fleets acquired aircraft carriers. Since the Revolution, the Soviet Navy has always had integrated naval aviation. When the war started in June, 1941, the Soviet Navy had 2,581 aircraft distributed among its four fleets of which 10 percent were torpedo carriers; 14 percent, bombers; 45 percent, fighters; 25 percent, reconnaissance; and 6 percent miscellaneous. During the war, the naval aviation received considerable number of fighter aircraft and bombers.⁴⁷

The post-World War II period witnessed the steady growth of naval aviation. But this growth up to 1955 followed the familiar prewar and wartime pattern, exclusively land-based aircraft with heavy emphasis upon fighters and the virtual absence (with the exception of a few TU-4's) of long-range aircraft. In addition to various types of MIG's, IL-28's in light bomber, torpedo carrier, and reconnaissance versions were delivered. In 1955, the first regiments of TU-16 Badger medium-range bombers were transferred to the navy from long-range aviation.

SHORE DEFENSE FORCES AND NAVAL INFANTRY

The Russian Navy and later the Soviet Navy have traditionally had sizable and well-organized shore defense forces. The major element of this force was represented by gunnery units deployed along the extensive Soviet shoreline with heavier concentrations around naval bases. Some areas, particularly the approaches to Leningrad, Vladivostok, and Sevastopol, had been protected by the system of forts with heavy caliber long-range guns since long before the Revolution. The Soviet Navy, while improving the hardware, changed little up to the late 1950's, when the gradual introduction of shore-based fixed and mobile surface-to-surface missiles started.

The naval infantry has a long history interrupted by certain periods when it was either reduced in importance or even deactivated in the Russian or Soviet Navy. It was born in 1705 when, on the order of Peter the Great on 16 November, the first naval infantry regiment was formed.⁴⁸ At the time of Peter's death in 1725, there were 50,000 troops of naval infantry in the Baltic. During the reigns of Peter's successors the strength and importance of naval infantry fluctuated. However, it was extensively and quite often successfully used in numerous wars, particularly against Turkey in the Mediterranean.

⁴⁷"Morskoy Sbornik", No. 8, 1971, pp. 18-23.

⁴⁸Kh. Kamalov and others, "Morskaya Pekhota" (naval infantry), military P. H. Moscow, 1957, p.

Some students of Russian naval history have found that "Tsarist Russia conducted a respectable number of assaults and landings from the sea against fortified positions. For amphibious operations the Tsarist government developed a suitable vehicle, a lead force and a functioning doctrine."⁴⁹

After the Revolution, a considerable number of rifle units were incorporated into shore defense forces. The first unit of naval infantry, however, the Independent Special Rifle Brigade, was formed in the summer of 1939 on the basis of the Ironstadt Rifle Regiment. In June 1940 the brigade was renamed as First Special Brigade of Naval Infantry, thus reactivating these special troops in the Soviet Navy.⁵⁰

During World War II, the total number of personnel engaged in the land fronts was close to half a million, but only a small part of this was represented by actual naval infantry. The others were units organized from ship's personnel, coastal defense units, and other naval establishments. They were formed into naval infantry brigades, special regiments, battalions and detachments, subordinated to the respective army commanders in the area of operations. Most of these units were called naval rifle units as distinguished from naval infantry units, but the term commonly used in reference to them by army commanders and the press was "naval infantry." This fact was probably responsible for the widespread belief of the existence of a large Soviet naval infantry corps. All these naval units were extensively used in most critical battles of World War II, and took part in the defense of Moscow, Leningrad, and Stalingrad.

Toward the end of the war, all naval infantry units and most naval rifle units were given the guards designation. During the course of the war, the Soviet Navy conducted 4 amphibious operations and 110 tactical landings. The distribution of landings among Soviet fleets can be seen from the following table:

	North	Baltic	Black Sea	Pacific	Volga and Dnepr
Number of landings	13	36	38	21	6
Landed troops (thousands)	16.5	89.5	200	21	3.5
Number of participating combatant ships ..	196	340	1,700	260	70
Number of participating transports and landing craft	50	300	1,000	50	-----

Source: Rear Admiral K. A. Stalbo, "Naval Art in Amphibious Landings of Great Patriotic War," "Morskoy Sbornik" No. 3, 1970, pp. 23-30.

Close to a quarter of all Soviet amphibious landings were under the command of Admiral Gorshkov.⁵¹ Soon after World War II, the Soviet naval infantry was abolished.⁵² However, the period of Soviet Navy development since the mid-1950's produced a new interest in the naval infantry, which has since been reactivated.

⁴⁹ See for example, Dr. R. W. Daly, "Russian Combat Landings," Marine Corp Gazette, June 1969, pp. 33-42.

⁵⁰ Kh. Kamalov, p. 58.

⁵¹ Rear Admiral K. A. Stalbo, "Naval Art in Amphibious Landings of Great Patriotic War," Morskoy Sbornik No. 3, 1970, pp. 23-30.

⁵² "Morskoy Slovar" (naval dictionary), military P.H., Moscow, 1959, Vol. II, p. 6.

PARTY CONTROL AND PERSONNEL POLICY

Party control of the Soviet Armed Forces was established during the first days of their existence. In the summer of 1918, political departments started to be organized in the army units. The Eighth Party Congress in March 1919 ordered the creation of a Political Department headed by a Central Committee member as part of the Revolutionary Council. In May, 1919 the department became the Political Administration. A unified system of the political organs of the armed forces was established. The naval department of the Political Administration was organized in March 1922 by a decision of the Party Central Committee. In 1938, the Military Council of the Navy and the Political Administration of the Navy were organized.⁵³ Throughout their history, the political organs have undergone the traditional Soviet shakeups and reorganizations, but have invariably maintained their importance and general structure.

As an instrument of party control over the military, the Institute of Zampolits has a complex history in the development of the Soviet Armed Forces and even more so in the development of the navy. Before the Institute of Zampolit was finally established, there were three periods during which the Institute of Political Commissars existed. When the Soviet Armed Forces were organized, and the need for political control arose, trusted party members were assigned as political commissars to each unit. They were responsible not only for political work, but were required to countersign each order given by the commanders. If a commissar considered an order counter-revolutionary, he had the right to negate it. Thus, in effect, a duel command system existed. The first introduction of system of one-man command (*edinonachaliye*) occurred during the second half of the 1920's. In the navy, the introduction of the system was delayed for the reasons discussed previously by at least 2 or 3 years. Under the *Edinonachaliye* system, the Zampolit (Deputy Commander for Political Affairs) was introduced, and replaced the commissar. But if the commissar had equal rights with the commander, the Zampolit was his subordinate and the commander was fully responsible for the units condition, including its so called moral-political and spiritual potential not to mention combat readiness. The Institute of Political Commissars, however, was introduced twice again, first during Stalin's purges in 1938, to be replaced again by the Institute of Zampolit in 1940 right after Finnish-Soviet War, and in 1941 right after the German attack on the Soviet Union, to be replaced, this time definitely in 1942, when it proved to be unworkable.

While officially proclaimed, the *Edinonachaliye* was not immediately exercised in all services and units. In the navy, particularly in submarines, the commissars survived longer than in any other service or branch. However, the postwar period witnessed a genuine strengthening of the system of *Edinonachaliye* without weakening neither party control nor the intensity of party-political work. Marshal

⁵³ "Communist of Military Forces", No. 7, 1969, pp. 9-22, and "Morskoy Sbornik", No. 3, 1971, p. 11.

Zhukov, while Minister of Defense, went a step further in the implementation of the Edinonachaliye system. The number of political workers in the units was reduced, criticisms of military commanders during the party meetings were prohibited, and the political workers were made responsible not only for the state of affairs in the area of their immediate responsibility, i.e. party-political work, but also for the state of discipline and even combat readiness of the units. When removed from his post in October 1957, Marshal Zhukov particularly, was severely criticized for the above steps and accused of attempting to undermine party political work in the armed forces. Until recently, and to some degree even today, the gap between line naval officers and political officers in general education, professional knowledge and popularity among enlisted personnel was considerable and in favor of the line officers.

Soviet naval development initiated a half century ago was initially accompanied by loud revolutionary slogans on the one hand and conservative, unrealistic attempts to promote classical naval theories on the other. Such dichotomous views were interpreted by some Western students of Soviet naval affairs as testimony to the existence of two opposing schools in the Soviet Navy both in a perpetual struggle to influence Soviet leadership. In reality, however, without seriously objecting to debates, and occasionally even encouraging them, the Soviet leadership was quite pragmatic in its approach to naval construction. It could not be otherwise, for the economic conditions of the country and the defense requirements as seen by the Soviet leaders for all practical reasons excluded any other approach. This is not to say that the Soviet leadership impressed a deep understanding of naval power and skillfully implemented it, but the available options were very limited.

World War I, the Revolution, and the Civil War all inflicted severe losses on the Russian Navy resulting in its disintegration and produced economic dislocation in the country. However, a number of factors favored the rehabilitation of the navy: The Russian naval heritage, which, with the notable exception of the Tsushima disaster (Russo-Japanese War of 1904–05), was generally glorious; the remaining ships and personnel, particularly a considerable number of former Imperial Navy officers, who, without necessarily accepting the Communist ideals, joined the Soviet Navy and, moved by patriotic feelings, worked hard; the rather extensive naval shipbuilding experience and considerable shipbuilding capacities, which would be and were restored; and the Soviet leadership's preoccupation with the defense of the country.

Long before the first Soviet tractor was built, the Soviet shipbuilding industry was gradually restored and the construction of naval ships, and first of all submarines, started. The accelerated industrialization of the country, strongly biased toward the defense sector, permitted the initiation of a number of shipbuilding programs, including the 1937 program visualizing the construction of a "mighty high sea navy worthy of the Soviet Union." This program far exceeded what the country could afford. A continuous shortage of metal, of machine building, and of other industrial capacities created the conditions wherein the implementation of the program was to the detriment of the other services, particularly the army. As a consequence, a minor war with Finland revealed the backwardness and un-

preparedness of the Soviet Armed Forces, and generated the need for urgent measures to correct the situation. The 1937 program was sharply curtailed and the construction of large surface ships stopped. However, reallocated capacities and resources did not affect either the submarine or small surface combatant construction. Considering the condition of the Soviet economy before World War II, the variety of ships and particularly submarines, built and under construction at the beginning of the war was substantial and negates the notion that the Soviet leadership neglected the navy.

The employment of the Soviet Navy during the war was neither brilliant nor disastrous. The land war threatened the existence of the Soviet Union as a state. The composition of the enemy forces neither created conditions for the application of classical tenets of naval warfare nor was the Soviet Navy ready for it or was there any need for it. On the other hand, the employment of Soviet naval forces, particularly during the initial period of war, was often marked by not very imaginative tactics and was handicapped by the lack of forces a considerable portion of which were involved in the land struggle. The war revealed a number of serious mistakes made in the process of naval development. The Northern Fleet was the weakest, and its reinforcement was slow. The Soviet Navy had no amphibious ships and the formation of naval infantry was delayed. The Soviet Navy was lagging behind in the development of influence mines and the means to combat them. The anti-aircraft defense of the Soviet ships was inadequate due to an insufficient number of automated and multipurpose guns. The top echelon of the Soviet naval command, eliminated during the 1937-38 Stalin purges, was replaced by young officers who did not have chance to gain experience. Moreover, the atmosphere of terror had to produce suppression of initiative and fear of bold action, resulting in a reluctance to commit important fleet units to combat. This reluctance was particularly evident in the Black Sea Fleet.

After the war ended, the Soviet Union wasted no time in resuming naval construction, despite the considerable destruction to the economy inflicted by the war. At first, ship designs of the prewar and late 1940 periods were built in considerable number, repeating the practice of the second half of the 1930's. The orientation of Soviet naval theory and practice in both the prewar period and the first postwar decade was clearly defensive, although a considerable number of submarines and relatively well developed naval aviation provided the Soviet Navy with a limited offensive capability in the peripheral waters. Political, and particularly economic, realities for all practical purposes prevented the Soviet Navy from obtaining any other capabilities. Even geography, although improved as a result of World War II, has continued to be unfavorable, and the centuries-old problem of the Straits remained. With the exception of an unnecessarily large number of conventional cruisers and destroyers built up to the mid-1950's, the remaining naval forces developed within the means of the Soviet Union did correspond to the role assigned to the Soviet Navy.

For a few years after Stalin's death, overwhelmed by the victories of World War II and particularly by the consequent development of nuclear weaponry and missilery, some influential Soviet military

leaders, represented by marshalls whose experience and outlook were limited by army operations, clearly undervalued and to a certain degree neglected the role of the navy. Soviet naval theory, on the contrary, even under the condition of severe limitations on the available hardware imposed mainly by the weakness of the economy and availability of allocated resources, continued to be quite active and modern. Various theoretical groups on the fleets, the academy, and naval schools encouraged and supported by a more imaginative navy leadership worked out a number of original and innovative proposals concerning the further development of the navy under new strategic and technological conditions. Strategically, in the postwar period, the Soviet Union has been facing opponents of which the majority have been traditional maritime nations headed by the United States and which have possessed strong navies. Moreover, military geography has changed, elevating the importance of naval warfare.

On the technological side, it was claimed that the development of nuclear weaponry, particularly coupled with the new means for its delivery—missiles and the progress in electronics, all of which the Soviets have termed the “scientific-technological revolution in military affairs”, made the navy particularly suitable for the application of these new means of warfare. The mid-1950’s decision of the Soviet leadership to drastically alter the course of naval development is testimony to the success of the Soviet Navy’s persuasion and probably of the military-political leadership’s understanding of the problem.

A far looking approach taken in the course of the decisionmaking process, which rejected any plans to construct attack aircraft carriers and to fight the opponent with its own weapons, approved the orientation of further naval development toward the missile armament and emphasized the prevailing role of the submarines and naval aviation. This seems to have been the best possible approach for the Soviet Navy under the circumstances. The relatively rapid adjustment of both the Soviet Navy and the defense industry to the new course has produced a qualitatively new navy.

MERCHANT MARINE

HISTORY OF DEVELOPMENT, PLANS AND THEIR IMPLEMENTATION

At the beginning of World War I, the Russian mercantile fleet numbered 1,040 ships with a total cargo carrying capacity of 912,000 tons. Many of these were old, slow, technically obsolete steamships and sailing vessels. Although three quarters of Russia’s foreign trade was carried by sea, only 7 percent of it was carried on Russian ships.⁵⁴ Foreign (German, French, British) interests owned a considerable percentage of the joint stock companies.

As a result of World War I, the chaos of the Revolution and particularly the civil war, many merchant ships were lost or sunk, taken overseas by the White Guards, or confiscated by foreign states. The total loss amounted to over 400,000 tons, or more than 40 percent. For example, in the Black Sea-Sea of Azov basin in addition to combat losses, 204 ships with a total cargo capacity of 206,000 register tons were taken away in 1920 by the retreating White Guards.

⁵⁴“Vodnyy Transport”, June 20, 1970.

The majority of the remaining ships were in poor technical condition, and many were sailing ships.

The February 1917 Revolution generated alarm among foreign stockholders of Russian steamship companies. There were attempts to hold Russian ships in foreign ports under various pretexts. The October Revolution just accelerated the process. In order to prevent it, the Soviet Government issued the decree of November 24, 1917, concerning "prohibition of the sale, hypothecation and chartering of Russian merchant ships by foreign citizens and organizations." All transactions concerning the transfer of ships abroad conducted prior to November 24, 1917 were declared void, and the sailing of ships to foreign ports prohibited.⁵⁵ The so-called "workers control" of steamship lines through specially organized committees was established. The decree by the Council of People's Commissars on the 23d of January (February 5) 1918 nationalized the whole Russian mercantile fleet. The newly organized Baltic company, Transbalt, in 1918 handled 160 Soviet and foreign ships in the Port of Petrograd, but the civil war interrupted even such modest activity.

On March 15, 1920, Lenin stated: "I repeat that our destiny depends on the forthcoming water transport campaign perhaps more than on the forthcoming war with Poland."⁵⁶ In May 1920 the decree signed by Lenin gave the Sovnarkom (Council of People's Commissars) exclusive right to permit the sale of ships and to enter into charter party agreements.⁵⁷

The resumption of foreign trade was badly needed to ease the economic dislocation of the country and to start the restoration of industry; and at least a small number of operational ships was required for that purpose. Because of the civil war, the only area from which the ships could operate and carry foreign cargo was the North. In May 1920 three sunken ships and, during the summer of 1920, several more were raised in the White Sea. The newly organized Directorate of Sea Transport for White Sea—Murmansk (Belomortran) collected 23 steamships (some with the ice-reinforced hulls) and 23 sailing vessels. Because of the shortage of coal, the latter were considered of special importance.⁵⁸ The first Belomortran ship, Subbotnik, left Archangel on the 16th of August 1920 with foreign trade cargo. In 1921 the Belomortran was reorganized into the White Sea District of Sea Communications (BOMPS), and in 1922 the Northern State Steamship Line Co. was formed.

In the Black Sea, the salvage of the ships started in the second half of 1920. After 1 year of salvage and extensive repair work, the Black Sea Steamship Line Co. resumed operation.

In the Baltic, the Baltic State Steamship Line was organized in 1922. The company immediately started to carry foreign cargo. Money earned by charter permitted the Baltic Co. to repair ships and thus to increase their number and total tonnage. After 1 year the company had 30 ships with a total tonnage of 89,590 tons.⁵⁹ After 1922, the shipbuilding industry speeded up ship repair and soon began the construction of new ships.

⁵⁵ "Morskoy Flot", No. 1, 1967, pp. 5-7.

⁵⁶ V. I. Lenin, "Complete Works", Fifth Edition, vol. 40, p. 218.

⁵⁷ "Morskoy Flot", No. 11, 1967, pp. 2-3.

⁵⁸ "Morskoy Flot", No. 3, 1963, pp. 8-10.

⁵⁹ "Morskoy Flot", No. 1, 1967, pp. 5-7.

With the introduction of the NEP (New Economic Policy) in 1921, all steamship companies started to operate on a self-supporting basis, and were no longer financed by the state. In order to attract private capital, the joint stock shipping companies Dobroflot and Sovtorgflot were organized.⁶⁰ In addition, foreign capital was attracted through a number of mixed companies. For example, in May 1921 the Russian-German Co., Derutra, and in 1923 the Norwegian-Russian Steamship Co. were organized. The mixed companies, besides bringing in needed foreign capital, were viewed as a device for avoiding the blockade of Soviet foreign trade cargo and for gaining experience in operating steamship lines. There was a strict "division of labor" between joint stock and mixed companies; the former were allowed to carry cargo between Soviet ports in coastal navigation and the latter were used for the transportation of foreign trade cargo exclusively.⁶¹ With the growth of the Soviet merchant marine and improved relations with many foreign states, both types of companies were liquidated.⁶²

In 1925 the restoration of the majority of ships was completed. The Soviet yards started to build new ships and, in addition, ship procurement abroad was initiated. In the same year a need to add 698,000 ships from domestic yards and foreign purchases was approved and set into motion by the Council of Labor and Defense. In 1928, prior to the first 5 Year Plan, about 80 percent of Soviet merchant marine ships were more than 20 years old. According to the first 5 Year Plan (1928-29/1932-33), 10 billion rubles of capital investment were planned for Soviet transport, 3.6 times more than the 2.7 billion rubles for the previous 5 years. It was further planned to complete the restoration of Soviet Merchant Marine and to increase cargo sea transportation more than four times, port cargo turnover two times, and total tonnage of ships more than two times.⁶³

During December of 1930 and the first few months of 1931, the Soviet transportation system, which was lagging considerably behind the increasing demand, became the object of the special consideration of the party and the government. A number of decisions were made to improve the situation. For example, on January 30, 1931 the decision to organize the People's Commissariat for Water Transport was made.⁶⁴ On April 14, 1931, another decision "on sea transport" demanded an improvement in the efficiency of the branch and approved the organization of six merchant marine directorates: The Azov, Baltic, Caspian, Northern, Pacific, and Black Sea.

Although the first 5 Year Plan was not fulfilled, the merchant marine received 136 new ships with a total cargo capacity of close to 500,000 tons (more than half were Soviet built). In 1932 the total cargo turnover of the Soviet merchant marine reached the prerevolution level.⁶⁵

⁶⁰ TsNIMF, Transactions, vol. 133, 1970, p. 37.

⁶¹ "Morskoy Flot" No. 11, 1967, pp. 2-3.

⁶² March 1930 Decision of the Soviet Government, See "Morskoy Flot", No. 1, 1967.

⁶³ "Morskoy Flot", No. 2, 1968, p. 3.

⁶⁴ Up to that time the Soviet Merchant Marine was subordinated to the Commissariat of Railroads. The new Commissariat of Water Transport included the merchant marine and the river fleet.

⁶⁵ "Morskoy Flot", No. 1, 1967, pp. 5-7.

The party directives for the second 5 Year Plan (1933–37) visualized an accelerated development of Soviet merchant marine. A total of 26.3 billion rubles were planned for the development of Soviet transport. Although the figures for the merchant marine were not published, judging from previous practice, 6 to 8 billion rubles would be a fair assumption. In reality, however, the merchant marine received only 23 new ships during 1933–34, with a total cargo capacity of 130,000 tons. The remaining 3 years of the second 5 Year Plan witnessed a sharp reorientation of Soviet industry toward military production. "In shipbuilding, navy orders became predominant, and construction of merchant ships practically stopped. Partial reinforcement of the merchant marine was conducted through the purchase of ships abroad."⁶⁶

Instead of ships and port modernization, the Soviet merchant marine was fed with decisions. According to a decision of the CPSU Central Committee in 1934 the political directorate of Water Transport and political departments in steamship companies were organized. Their functions were defined, "to assure fulfillment of party directives for the improvement of all activities of water transport, to increase political education and training of personnel, to elevate vigilance."⁶⁷ Meanwhile, the shortage of Soviet tonnage forced the greater use of the chartering of foreign ships.

The Spanish Civil War presented the Soviet merchant marine with an additional burden. The Soviet supplies to the Republicans could be delivered only by sea, directly to the Spanish ports, or through France. A number of Soviet ships were detained by Franco forces, and three, the *Komsomol*, the *Timiryazev*, and the *Blagoev*, were sunk. The weak Soviet Navy could not provide the Soviet merchant marine with effective protection.

The 18th Party Congress (March 1939) directives for the third 5 Year Plan for 1939–43, visualized the acceleration of the merchant marine development. According to the plan, the merchant marine role in the country's transportation system was to be increased, new types of ship were to be built, ports improved, and the Northern Sea Route mastered. A considerable increase in capital investment was planned.⁶⁸ In reality, however, despite a modest increase in civilian shipbuilding, little was done to improve the merchant marine prior to World War II. By 1940 the tonnage of the U.S.S.R. Merchant Fleet approached 2 million tons, but qualitatively the majority of ships were obsolete and in no way able to satisfy the needs of sea transportation, either in peacetime or during the war.

When the war started on June 22, 1941, a number of merchant ships were taken over by the Soviet Navy. The activity of all steamship companies was immediately subordinated to the needs of the military command, and firm military control over them was established.

The war took a heavy toll of the Soviet merchant fleet. Nearly half (380) of all ships were lost and practically all remaining ships were badly in need of repairs. The Soviet Union collected all the

⁶⁶ "Morskoy Flot", No. 2, 1967, p. 4.

⁶⁷ "Morskoy Flot", No. 2, 1967, p. 5.

⁶⁸ "Morskoy Flot", No. 3, 1967, p. 7.

Axis shipping it could as reparations. A number of ships, mainly Liberty-class, were obtained under Lend-Lease. Decrepit was the term describing the condition of small old ships built in various countries during previous two to three decades. The war caused considerable damage to Leningrad, Murmansk, and a number of other ports, while such large ports as Odessa, Novorossiysk, Nikolayev, Tuapse, Tallin, and Riga were destroyed.

The plan for the restoration and development of the Soviet economy approved in March 1946 envisaged for the merchant marine; the delivery of 400,000 tons of ships, accelerated repair of suitable ships, capital reconstruction of major ports, 2.2 times greater cargo turnover in 1950 compared with 1940, and a 2.5 times increase in production capacity of ship repair yards.⁶⁹ Actually in 1950 the Soviet merchant marine transported 33.7 million tons of cargo with a total cargo turnover of 21.4 million ton-miles. The promised tonnage was not delivered, although the repair facilities were improved and port restoration had begun. The inability of the mercantile fleet to fulfill the plan was recognized in the Counsel of Ministers Decision of June 1, 1947 "on measures to improve the operation of the merchant marine and fulfillment of the state plan for transportation of cargo in 1947." While this "stick" intensified somewhat an already tense situation in the industry, it could not and did not produce drastic improvements.

Directives for the fifth 5 Year Plan (1951-55), adopted by the 19th Party Congress in October 1952, devoted considerably greater attention to the merchant marine. The capital investments were increased, somewhat larger facilities for new constructions allocated, an intensified procurement of ships abroad approved, modernization of existing and construction of new shipbuilding yards and ports, planned.

During the 1951-55 5-year period, the growth of the Soviet merchant marine exceeded that in the previous 5-year period by 63.8 percent. More than half of the new ships received were Soviet built. In addition, many ships underwent major repairs, the last time such an approach was used on a large scale by the Soviet Union. In 1955 the merchant marine carried 53.7 million tons of cargo with total turnover of 37.2 billion ton-miles.⁷⁰

In regard to the organization and management of the Soviet merchant marine, the Independent People's Commissariat of Water Transport was organized in January 1931, incorporating the Soviet merchant marine and river transport. Previously, the merchant marine was subordinated to the People's Commissariat of Transport Communications. In April 1939, the Independent People's Commissariat of Sea Transport (merchant marine) was organized. In March 1953, right after Stalin's death, the Soviet merchant marine and river transport were again united in a single Ministry of Sea and River Transport. The organizational structure would undergo a final revision in 1964 with the establishment of the All-Union Ministry of the merchant marine.

⁶⁹ "Morskoy Flot", No. 5, 1967, p. 6.

⁷⁰ "Morskoy Flot", No. 6, 1967, p. 7.

Up to the mid-1950's, the development of the Soviet merchant marine was dictated mainly by the internal economic needs and demands of Soviet foreign trade, which were not substantial. Specialization in ship repair was started just prior to World War II. At the beginning of the 1950's, the rehabilitation of existing ship repair yards and construction of new ones increased the production capacity 2.75 times over that of 1940. The modernization of ship repair yards continued throughout the decade. Until 1956, most of the funds allocated for ports were spent for post war restoration. However, in 1956, a new stage in the development of port facilities was initiated. The development of the Soviet merchant marine over half of a century had been extremely uneven. Up to about the middle of the 1950's it had not been distinguished either by the rate of its development or its size or the characteristics of its ships. However, the existing merchant marine was able to, and to a large degree, did satisfy a rather considerable dependence of the Soviet economy and certain regions of the country upon sea transport. The size and character of the Soviet landmark create a dependence upon sea transport. To some areas, particularly in the Far East and the Northern territories, overland transportation does not exist, and the sea is not only the most logical, but the cheapest way to transport goods.

In the pre-World War II period, not until the first 5 Year Plan (1928-32) was the Soviet merchant marine reinforced by sizable number of new constructions. During the second 5 Year Plan (1933-37) merchant ship construction was curtailed in favor of warship construction. The attempt to correct the situation during the third 5 Year Plan lost out to the war. After World War II and up to the middle of the 1950's there was very little new construction in the Soviet shipyards. The procurement of ships abroad, though important, was not on a very large scale either.

In 1956 the accelerated development of the Soviet merchant marine was started. Considerably larger domestic shipbuilding capacities were provided and orders for ships abroad increased. It is doubtful that the decision to accelerate the development of the Soviet merchant marine, particularly as far as the rate of its development is concerned, was the result of a planned approach. The requirements for sea transportation generated by the relatively fast development of Soviet foreign trade and the initiation of economic and military aid were far in excess of the Soviet merchant marine's capability, and hence forced heavy dependence upon the charter market.

SHIPBUILDING INDUSTRY

Prerevolutionary Russia had a relatively well developed shipbuilding industry, characterized by distinct eccentricities: (1) specialization in naval construction; (2) extensive control by foreign capital; (3) dependence (and often far beyond necessity) upon foreign technology. Naval construction programs, often being more profitable, monopolized Russia's shipbuilding capacity, resulting in very few merchant marine ships being built in Russian shipyards. In 1913, 85 percent of the total Russian merchant marine tonnage was comprised of foreign built ships.⁷¹

⁷¹ Sudostroyeniye (shipbuilding), No. 11, 1967, pp. 31-37.

Owing, in part, to the naval shipbuilding orientation, the technological level of the Russian shipbuilding industry remained comparable to that of major European maritime powers. Supporting industries, receiving less emphasis, were subsequently less developed and hence, explain Russia's dependence on foreign deliveries, particularly ship machinery. A number of types and classes of ships built prior to the revolution were equal and some even superior (e.g., destroyer *Novik*) to comparable ships of the major maritime powers. Commercial shipbuilding, to the contrary, was underdeveloped; during the period 1905 to 1917, Russian shipyards built only eight merchant ships.

The chaos and destructiveness of the revolution and the civil war brought the Russian shipbuilding industry's productive activity close to nil, and most of the shipyards fell into decay. However, in 1921, the first southern shipbuilding yards (Black Sea) and in 1922 the Petrograd shipyards began their restoration, and gradually resumed work. In January 1922, a shipbuilding trust was created in Petrograd to "organize the work of the shipbuilding yards for the restoration of the navy."⁷² Again, as prior to the revolution, the emphasis was placed on naval shipbuilding. It soon became clear that the one-sided emphasis on naval construction was beyond the reach of the badly damaged Soviet economy.

The introduction of the New Economic Policy and urgently needed foreign exchange for import payments forced the Soviet Government to reconsider the shipbuilding industry priorities and to place greater emphasis on the merchant marine.⁷³ Additionally, the poor condition of in-country transportation demanded the hasty development of water transports. In 1924, the Soviet Government decided to construct timber carriers, tankers and refrigerators immediately.⁷⁴ By the beginning of 1925, previously initiated efforts resulted in the complete restoration of all remaining ships of the nationalized merchant fleet. Early in 1925, the special committee of the Consul of Labor and Defense presented the first 5-year shipbuilding program for the years 1925–30 and the Central Bureau for Shipbuilding was organized in Leningrad. In 1928, all of the suitable remaining ships of the former Russian Imperial Navy, were either restored or completed and the Soviet shipbuilding industry started to build new naval ships.

The first 5 Year Plan, 1929–33, visualized construction of 216 ships for the Soviet merchant marine, 1 floating dock, and 16 harbor tugs. However, not only was this program not fulfilled, but two combined programs, 1925–30 and 1929–33, produced only a total of 104 merchant ships.⁷⁵ Throughout the 1930's, so few commercial ships were built that the programs for their construction are not discussed in modern Soviet specialized literature. The 15-year period from 1925 to 1940, resulted in the construction of 23 tankers with total capacity of 200,000 dwt. A large number of riverboats were built by secondary shipyards, and priority programs such as the construction of a few icebreakers were fulfilled. The minimal performance of the shipbuilding industry with regard to the Soviet merchant marine is casually explained by "this period having coincided with the beginning of intensive construction of the navy."⁷⁶ The third Five-Year Plan,

⁷²"Shipbuilding" No. 4, 1969, pp. 69–70; No. 4, 1970, pp. 1–5.

⁷³"Shipbuilding" No. 5, 1971, pp. 45–51.

⁷⁴"Shipbuilding" No. 11, 1969, p. 17.

⁷⁵"Shipbuilding" No. 11, 1967, pp. 1–3, and No. 4, 1970, pp. 1–5.

⁷⁶"Shipbuilding" No. 11, 1967, p. 2.

1939–43, devoted somewhat greater attention to the merchant marine, but the plan never materialized because of war.

A number of innovative methods were introduced to the shipbuilding industry prior to World War II. In 1930, in a Soviet far eastern shipyard, the first tug with an electro-welded hull was built. In 1932, Admiralty Yard, in Leningrad, while building a timber carrier introduced the sectional method of hull construction.⁷⁷ However, those innovations were seldom widely used in commercial shipbuilding and were primarily employed for naval construction. A program for shipyard restoration, primarily for purposes of naval construction, was initiated prior to World War II and a number of new major shipyards were built.

During the war, the Soviet shipbuilding industry managed to complete the construction of ships with a high degree of prewar readiness; however, the industry was basically involved in the repair and maintenance of ships of the Soviet Navy, some yards built tanks and other items for ground forces.

The war resulted in the severe damage or destruction of many of the principle shipbuilding yards, particularly in the Black Sea area. Immediately following the war, the Soviet shipbuilding yards were among the first enterprises to be restored and considerably modernized. The productive capacities of many yards were enlarged and covered fabrication shops, permitting year round production in the northern area.

The allocation of shipbuilding capacities in the Soviet Union during the first postwar decade reminds one of the prewar situation; i.e., naval shipbuilding, intensified in 1947, had received far greater priority in allocations, while commercial shipbuilding was conducted on a residual basis. However, there was an increase in the number of smaller yards and the portions of larger ones which were involved in commercial shipbuilding.

Two major decisions made soon after Stalin's death altered not only the nature of Soviet shipbuilding, but also affected the allocation of capacities. The first decision was connected with the beginning of nuclear submarine construction in 1953; the second involved termination of the construction of a large series of cruisers and conventional destroyers. A number of buildways, previously committed to cruiser and destroyer construction, were subsequently vacated. Some of those previously involved in cruiser construction were gradually converted to the construction of nuclear submarines; part of the others previously allocated to destroyer construction were redirected to the production of diesel submarines. The remaining vacated buildways were allocated to commercial shipbuilding thus initiating, together with increased orders abroad, a rapid development of the Soviet merchant marine. The accelerated submarine building program definitely demanded an expansion of the Soviet submarine building facilities which probably took place during the late 1950's and early 1960's.⁷⁸

⁷⁷ "Shipbuilding" No. 4, 1969.

⁷⁸ "Jane's Fighting Ships" 1966–1967 thru 1970–1971 editions.

In addition to the number of geographical discoveries by the Russians, many of which were associated with commercial undertakings, the first Russian expedition to study the northern and eastern shores of the country and to describe the seas, the so-called Great Northern Expedition, was ordered by Peter the Great and conducted after his death (1725–30 and 1733–43). During the around-the-world voyage of the *Predpriyatiye* (1823–26), the physicist Lents measured water temperature, salinity, and density.⁸⁰ The famous scientific cruise of the British research ship *Challenger* (1872–76) had a considerable influence upon the development of oceanography and especially the Russian approach to it. The *Challenger* Expedition, in effect, established a methodical approach which has been used in general up to the present time. The Russian expedition aboard *Vityaz*, in which a young S. Makarov participated, was the first Russian attempt to follow it.

The collection of data and facts mainly through expeditions was still considered to be one of the major tasks at this stage of development of oceanography. Up to the quite recent past, hydrography and meteorology were the two best developed disciplines, for they were in fact the ones needed most for navigation. The level of development of science and technology, particularly the latter, had been the major limiting factor to the scope of oceanographic work.

During the first few years of Soviet power, the activity of Soviet oceanography was, for obvious reasons, very limited, and centered around hydrography. In 1922 the Soviet flag was raised over the first scientific research ship, the modernized schooner *Dorsey*, which became the center of the newly organized Polar Floating Marine Research Institute (Plavmornin). Naval (military) hydrographers, whose corps were established in Russia in 1827, formed the backbone of early Soviet work which was performed mainly in the northern seas. During the Second International Polar Year (1932–33), rather extensive oceanographic research was conducted by the Soviet Union. Work in the Black Sea started in 1923, where the Black Sea Oceanographic Expedition was organized and conducted its work up to 1935. In the Far East, oceanographic research started in 1924. In 1928 the work was enlarged. A joint expedition of Soviet Navy hydrographers and the U.S.S.R. Academy of Sciences was organized.

During the second half of the 1930's a number of Soviet expeditions in the Greenland and Norwegian seas began seasonal hydrological surveys of the ice-free regions of these seas. The work was of great importance in providing the basis for ice forecasts along the northern sea route.⁸¹ During the 1930's Soviet oceanographers undertook the study of wind waves and surveys of the coastal wave motion. During the 1930's the knowledge of currents in the seas around the Soviet Union was expanded considerably. The observations of tidal phenomena expanded considerably, resulting in the publication at the end of the 1930's of tables and handbooks containing the charac-

⁷⁹In the Soviet literature on the subject, the terms oceanography and oceanology are used interchangeably and are synonymous. The latter seems to be preferred by Soviet scientists.

⁸⁰N. F. Medvedev, *Suda dlya Issledovaniya Mirovogo Okeana* (Ships for the Research of the World Ocean), Sudostroyeniye, Leningrad, 1971, p. 215.

⁸¹"Morskoy Sbornik" No. 7, 1967, p. 46.

teristics of tides for all the tidal waters around the Soviet Union. In 1941 the Hydrographic Directorate of the Soviet Navy published tide tables for all the oceans and seas in the world.⁸²

Soon after the war, Soviet oceanographic work was intensified. In 1947 Soviet scientists began their work aboard ships of the Slava Whaling Flotilla during its operations in the Antarctic. Almost 1,000 hydrologic stations were made in Antarctic waters during the period 1947-57. During this time, many hydrologic stations were also made in the Pacific Ocean. Soviet oceanographic research in the North Atlantic began in 1951, utilizing fishing trawlers. It was sharply increased in 1954, when the observations began to be conducted simultaneously by several ships, assuming the character of oceanographic surveys. Soviet oceanography was very active during the International Geophysical Year, 1957-59.

Between the Revolution and World War II Soviet oceanographic research, primarily hydrographic in nature, was conducted mainly in the contiguous seas. Although not far behind the world level of that period, Soviet oceanography did not distinguish itself, except for the scope of the Arctic research and the resulting knowledge. Since World War II, however, the Soviet Union has gradually and steadily intensified its oceanographic efforts, placing initial emphasis on expeditions and the collection of much needed data.

FISHING INDUSTRY

Fish have always been an important part of the Russian diet. Prior to the 1917 October Revolution, fishing was rather well developed in Russia, especially in the areas adjoining seas and along large rivers and lakes. Expensive fish such as sturgeon, and fish products such as caviar, were among the famous Russian export items. Most of the catch was brought by individual fishermen, though fishing by specially formed communes and fishing villages was also quite common. The amount of "fresh water" fish far exceeded "salt water" catch. Immediately after the Revolution, the Soviet Government initiated a number of measures designed to increase the supply of fish. By special decree of the Council of People's Commissars, dated December 9, 1918, the Main Directorate for fishing and the fishing industry known as Glavryba, headed by a special collegium, was organized. Soon, however, due to the ineffectiveness of that organization and the urgent need to increase the fish supply, another decree of the Council of People's Commissars of May 31, 1921, liquidated the state monopoly on fishing and gave Glavryba greater independence over the administrative, financial, and business aspects.

Starting in 1926, Gosplan issued the first "control figures" for developing the fishing plan. In 1928, the first 5 Year Plan for the development of the fishing industry was worked out. The main goals of the plan were: accelerated catch growth, reduced cost of fishing, development of fishing fleet, and complete removal of private Soviet capital from the fishing industry (foreign concession rights were left temporarily untouched). Under a new order from the Soviet Government, however, the 5 Year Plan for the fishing industry was drastically

⁸² "Morskoy Sbornik" No. 7, 1967, pp. 47-49.

changed in 1929. The new requirement was to increase the catch more than 2 times over original plan and by 1933 to achieve a 2.6 times higher catch than the prerevolutionary level.⁸³ Obviously, the plan was not fulfilled. However, the very intensive work of many enterprises and organizations resulted in some increase in the fish catch, in modest introduction of new technology and in the building of a considerable number of fishing vessels.

In 1930 the first Soviet steel fishing trawlers were built in Leningrad. They had installation for the production of fish meal and canning, as well as storage capacities for salted and fresh (refrigerated by ice) fish. In 1934 the first Soviet floating canning factory was built for service in the Caspian Sea. The ship was capable of receiving fish from trawlers and processing it. In 1937 the first fish processing factory ship was build for the northern basin.

During the second half of the 1930's, the construction of fishing vessels was slowed down due to the lack of shipbuilding capacities, which were taken up by naval construction. The total catch for 1940 was 1.4 million tons.⁸⁴ During the war many fishing ships were mobilized by the Soviet Navy. However, fishing continued even during the war, though at a lower intensity.⁸⁵

After the end of World War II, the Soviet fishing industry was in a bad state. Many fishing vessels had been lost in the war, and those which remained were in poor condition with worn machinery and hulls in need of repair. The problem was aggravated by the fact that a considerable portion of the Soviet shipbuilding and ship repair capacities, was either destroyed or severely damaged. Moreover, the agricultural sector of the Soviet economy was also in extremely bad shape, and the country was in dire need of foodstuff. Consequently, the fishing industry was once again presented with an extensive plan for a fish catch.

Starting in 1947, the Soviets succeeded in building a series of medium trawlers (SRT) for side trawling and for use of drift nets. In the late 1940's the prewar catch level was achieved. The greatest portion of the catch was obtained from internal waters (rivers, lakes) and close, offshore waters of the adjoining seas. Most of the fishing vessels of that time were represented by small seiners, employing fishing methods and gear which were not very productive.

The turning point occurred about 1950, after which there was an accelerated development of high sea fishing, resulting in steadily growing catches. Restoration of war-damaged industry and achievement of prewar levels of productions, together with growing shipbuilding capacities in East Germany and Poland, assured rapid buildup of the fishing fleet.⁸⁶ It was also recognized that in order to achieve a large increase in the Soviet catch, the high seas fishing operations would have to be expanded. To be efficient those operations required a special fishing fleet consisting not only of trawlers, but mother ships, factory ships, refrigerator-transport, and support ships such as tankers, tugs, etc.⁸⁷

⁸³ "Rybnoye Khozyastvo" (fishing industry) No. 2, 1971, pp. 6-8.

⁸⁴ "Vodnyy Transport", July 10, 1971.

⁸⁵ "Shipbuilding" No. 12, 1969.

⁸⁶ Emerging capability of the Satellite countries to build ships, particularly fishing vessels, were very important for the Soviet Union because its own shipbuilding industry, though mainly restored and even growing, was busy fulfilling orders for an extensive naval shipbuilding program initiated in 1947.

⁸⁷ Sudostroyeniye No. 12, 1969.

RIVER TRANSPORT

About two thirds of the total number of rivers in Europe and Asia flow through the territory of the Soviet Union. They became natural transportation arteries around which the economic development of Russia, particularly European Russia, was to a large degree centered. Moreover, the vastness of the territory and the poorly developed land transportation system made rivers indispensable for the transportation of goods, raw materials, and people. In many areas, particularly in Siberia, river transport has been the only practical means of transportation in extensive use. During the 18th and 19th centuries, a number of artificial waterways (canals), were built. Use of the steam engine on the Russian rivers dates as far back as the early 19th century. In the second half of the 19th century, the mass transportation of oil was being conducted on the Volga River on a regular basis. It may therefore be said that prerevolutionary Russia had a fairly well developed inland water transport system.

The river transport system was badly damaged by World War I, the Revolution and particularly the civil war. Nevertheless, a considerable number of river steamers survived and were put in extensive use by the Soviet Government, which nationalized all means of water transportation soon after the Revolution.

The first 5 Year Plan (1928-32) provided the beginning of what was termed the "reconstruction of river transport on the basis of wide introduction of new technology." Although not much new technology was introduced, particularly as far as ships were concerned, there were some improvements in the waterway system—the major such improvement being the construction of a large dam on the Dniepr River in 1932. A year later the Belomor (White Sea-Baltic) Canal was built.

The second 5 Year Plan (1933-37) demanded a considerable increase in the cargo transported by the river fleets, from 26 billion ton-kilometers at the beginning of the period to 63 billion ton-kilometers, a figure never achieved prior to World War II.⁸⁸ In 1913 (last year prior to World War I) 28.5 billion ton-kilometers of cargo was transported by the Russian river fleets, but the figure for 1940 was only 36.1 billion ton-kilometers, i.e., there was little growth over a period of nearly 20 years. An extensive program for the construction of canals was planned for the second 5-year period. During the 1930's, river passenger service was considerably expanded.

The war not only interrupted the development of Soviet river transport, but inflicted considerable losses on it. More than 4,300 various vessels were lost, and hundreds of river ports and docks, 300 dams, and more than 60 locks were destroyed.⁸⁹ River fleets actively participated in the war, making a noteworthy contribution to the efforts of the overall Soviet transportation system.

A decree of the Council of Ministers of the U.S.S.R. of September 1, 1947, approved a special program for the accelerated development of river transport, which played an important role. The program en-

⁸⁸ Rechnoy Transport (River Transport) No. 4, 1970.

⁸⁹ Rechnoy Transport, No. 4, 1970.

visaged the accelerated construction of new river vessels and also the reconstruction of ports and a number of important waterways.

The directives of the fifth 5 Year Plan approved by the 20th Party Congress (1956) considerably increased the appropriations for river transport and allocated a greater portion of the domestic shipbuilding facilities for the construction of river vessels. The most rapid development of Soviet river transport would take place in the 1960's when the river fleets received thousands of new vessels. Up to 1956, Soviet river transport was controlled either by the Ministry of the merchant marine or by the Ministry of the River Fleet of the U.S.S.R. In 1956, in conjunction with Khrushchev's experiments with "decentralization," the Ministry was abolished and instead organizations to control the river fleet were created in the individual republics.

NORTHERN SEA ROUTE

The Arctic Ocean differs sharply from all the other regions of the world ocean with respect to its climatic and especially its ice conditions. The Soviets consider the development of the Polar Regions and the northern sea route as one of the brightest pages in the history of Russia. Recognizing the important contribution by foreigners, historically Russia, and by succession, the Soviet Union was the major discoverer of most of the Arctic Islands and lands, and first to achieve practical mastery of navigation along the northern sea route. The first complete passage of the northern sea route from east to west was made in 1915 by two Russian ships. The expeditions of 1910-14 established a number of routes to the northern regions of Russia from its Pacific coast.

In September of 1916 a note by the Russian Foreign Ministry was sent to all nations asserting the Russian claim to all territories explored and unexplored, discovered and undiscovered between the Russian coast on the Arctic Ocean and the North Pole, with the exception of previously recognized territories of other nations.⁹⁰ Thus, the recognition of economic and strategic value of the region was clearly demonstrated by the Russian Government. Practically from the very beginning of its existence, the Soviet Government has recognized the economic and strategic value of the northern region. On November 4, 1924, following unsuccessful attempts of Canada to lay claim to Wrangel Island⁹¹ a memorandum to all states was sent by Soviet Government reiterating the 1916 notification from the Russian Minister of Foreign Affairs and calling attention to the eastern boundaries of Russia and the United States established by the convention of 1867.⁹²

The Soviet Government has issued a series of legal acts related to the status of Soviet Arctic and to the exploitation and organization of the route. In addition to the above mentioned reinforcement of the Tsarist government acts concerning Arctic possessions, the resolution of April 15, 1926 by the Presidium of the Central Executive Committee of the U.S.S.R. proclaimed the establishment of the geo-

⁹⁰ For the details of this diplomatic move see: Constantine Krypton, "The Northern Sea Route and the Economy of the Soviet North", (Praeger, New York, 1956, and "Ostrov Vrangelya" (Wrangel Island), Moscow, Glavsevmorput, 1946, pp. 35-36.

⁹¹ C. Krypton, p. 38.

⁹² Ibid., p. 46.

graphical boundaries of the Soviet sector of the Arctic between meridians 32°04'35" E. longitude and 168°49'30" W. longitude. Within the boundaries of the indicated sector, the Soviet Union claims to exercise full sovereignty of all "land and islands located in the Arctic Ocean, north of the coast of the Soviet Union, as far as the North Pole."⁹³

With respect to development of the northern region, the first ice-air reconnaissance was made in 1924. Two years later landing and taking off from the ice was mastered. Gradually, the aviation began regular ice-air reconnaissance and thus Polar Aviation was developed.⁹⁴ The network of Polar Station had been growing steadily. In December 1932, by the special resolution of the Council of People's Commissars of the U.S.S.R., the Main Directorate of the Northern Sea Route, Glav Sev Mor Put', was organized. This organization, with extremely wide range of responsibilities, played a very important role in the development of Soviet Arctic in general and northern sea route in particular. The Soviet mastery of the route was demonstrated in 1939. Prior to World War II, duration of navigation reached over 100 days in the western part of the northern sea route and over 70 days in its eastern part.

To the best knowledge of this writer, the only passage of a foreign warship along the northern sea route took place in 1940, when after signing of Soviet-German Pact, a German raider, classified as Auxiliary Cruiser and called *Ship 45* (Comet) made a successful passage to Pacific, assisted by Soviet pilotage and the ice-breaker, *Stalin*. While in Pacific the *Ship 45*, in cooperation with the other German raider *Ship 36*, and alone sank several allied and neutral merchant ships. During the war the route was used to all possible extent, including the transportation of lend-lease supply from the United States initially delivered to the Soviet Far East. Each year tens of ships passed from the Pacific toward the west being accompanied in the western part of the route by convoys. Germany's effort to interrupt this rather important transportation artery by employing submarines, raiders, and aviation, though resulting in some losses, was generally unsuccessful, due to a number of factors among which climatic conditions, size of the forces employed, and lack of reconnaissance were the major ones.

After the war the efforts for further mastering of the northern sea route continued. Systematic, planned research in the Arctic was intensified during the period of 1948-51, followed by 3 years of passivity. After 1954 the Soviet Union has maintained at least two drifting stations on the ice. The total number of these stations in a 34-year period, starting with 1937 I. Papanin Station has been 20.⁹⁵ Polar aviation was reinforced with a greater number and better quality of aircraft. By the mid 1950's the northern sea route was fully operational.

⁹³ "Morskoy Sbornik" No. 6, 1970, pp. 83-88.

⁹⁴ "Morskoy Flot" No. 9, 1967, pp. 9-11.

⁹⁵ Vodnyy Transport, 15 December 1970.

NAVAL POWER AND SOVIET OCEANS POLICY

(By Michael McGwire*)

Between February 1972 and February 1973, the Soviet Navy's professional journal "Morskoj sbornik" (Naval Review), published a series of 11 articles over the name of Admiral Gorshkov, Commander-in-Chief of the Soviet Navy. The series was entitled "Navies in War and Peace" and ran out at 54,000 words, which is equivalent to a short book. There seems little doubt that Gorshkov's own arguments are contained in these articles, and the purpose of this chapter is to consider what light they throw on Soviet oceans policy and the navy's place in that policy.

About 80 percent of the Gorshkov series comprises a selective historical analysis of "the role and place of navies in various historical eras, and at different stages in the development of military technology and the military art . . .".¹ The articles contain a great deal of information, but the main thrust of Gorshkov's argument can be summarized as follows:²

a. The armed forces have not lost their importance as an instrument of state policy, and military power continues to determine the final outcome of interstate interaction.

b. The relevance and importance of navies as a means of achieving political objectives *in peace and war* is continuing to increase. The inherent attributes of naval forces have projected them to the forefront of contemporary *means of combat*.

c. These same attributes lend themselves to securing a country's interests beyond its borders *in peacetime*. Naval forces have a unique capacity both to demonstrate the state's economic and military might, and to project military power in peacetime.

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¹S. G. Gorshkov, "Navies in War and Peace," "Morskoj sbornik" No. 2, 1972, p. 23, para 2. See also "Red Star Rising at Sea" (a translation and commentary on the Gorshkov series), United States Naval Institute Proceedings (USNIP), 1974, p. 3, col. 2, para 1. References to the Gorshkov series will be shown hereafter as: "Msb". Year/Issue/Page/Para; USNIP's Page/Column/Para.

²These points are similar to those highlighted by Weinland, the difference lying in selection and emphasis. In an earlier analysis, Herrick wrote: "In general, Gorshkov is arguing, all of Russian Naval History, both Tsarist and Soviet, evidences the vital necessity of developing and maintaining large, modern naval forces . . . It would require a fertile mind to turn up an argument that has not already been woven into the fabric of his . . . naval history . . .". Wooldridge comes to similar conclusions about the main thrust of the series. See: E. T. Wooldridge, "The Gorshkov Papers: Naval doctrine for the nuclear age" in ORBIS, Winter 1975, p. 1157; R. W. Herrick, "The Gorshkov Interpretation of Russian Naval History" in McGwire (Ed.) "Soviet Naval Developments: capability and context" (Praeger 1973), p. 306, and R. G. Weinland, "Analysis of Admiral Gorshkov's Navies in War and Peace" in McGwire, Booth and McDonnell (Eds.), "Soviet Naval Policy: objectives and constraints" (Praeger 1975), p. 551. Weinland's analysis also appears in "Admiral Gorshkov on 'Navies in War and Peace'" (Center for Naval Analyses, Washington, CRC 257, September 1974), together with the analysis by James M. McConnell, and my own analysis.

d. Naval strength has always been a necessary attribute of great power status. History shows that Russia has always suffered when she neglected her naval strength. For inherent reasons (geographic, economic, political) the Soviet Union *needs* a powerful navy.

Gorshkov's major thesis can be characterized as a contemporary exposition of classical seapower theory. We are, however, much less clear about what can be inferred from the details of his arguments, and more important, about the reasons which prompted the unprecedented publication of the series. In particular, we need to know whether their purpose was to *announce* a new or greater role for the navy. Or is the opposite the case, and did their publication reflect a major policy debate which threatened the navy's institutional future? Was the series in fact seeking to *justify* the navy's existing role and allocation of resources? Or could it even be that Gorshkov is *advocating* a more powerful distant water fleet and a greater use of this instrument of foreign policy.

Although there are no certain answers to these questions, we are likely to achieve a better understanding if we have as clear an idea as possible of the full context in which Gorshkov was writing. To that end, I start this chapter by outlining the evolution of Soviet naval policy since the war. I then make a rough assessment of the Soviet Navy's overall situation at the time the series were written in 1971-72, including some attempt to perceive the type of policy-decisions which were approved by the 24th Party Congress in the spring of 1971. After that I turn to consider the substance of the Gorshkov series and what can be inferred from them. Next, I discuss whether the Soviet Union has an "Oceans Policy," and what role her navy might play in such a policy. And finally, I look at the prospects for the decade ahead.

THE EVOLUTION OF SOVIET NAVAL POLICY: 1945-71

The analysis of Soviet naval policy is best seen as an ongoing hypothesis. The depth of our understanding depends largely on the extent of our hindsight and as time goes by we gain perspective, fragmentary evidence begins to accumulate in meaningful ways and trends become clear; even more important, we are able to perceive the operational and hardware outcomes of decisions taken several years previously. The following explanation of developments since 1945 concentrates on what seem to have been the primary determinants of Soviet naval policy. In its general outline this interpretation is now widely accepted by specialists in the field, for the period up to about 1967-68. Thereafter, as the evidence becomes more ambivalent and fragmentary, opinions begin to diverge, but I will try to indicate the range of informed assessments.³

While Russia is predominately a land power, for the last 200 years or so her navy has generally been the third or fourth largest in the world, although its effectiveness fluctuated widely. Russia used

³This section draws on my chapter "The Evolution of Soviet Naval Policy: 1960-74" in McGwire, Booth and McDonnell (Eds.), "Soviet Naval Policy: objectives and constraints", pp. 505-546. See also "The Turning Points in Soviet Naval Policy," in McGwire (Ed.), "Soviet Naval Developments: capability and context" (Praeger 1973), pp. 176-209, and "Soviet Naval Procurement" in "The Soviet Union in Europe and the Near East" (Royal United Service Institute, London 1970), pp. 74-82. For convenience, I have drawn heavily on the first two books for references.

naval forces in the 18th century to gain control of her Baltic and Black Sea coasts, and four times between 1768 and 1827 she deployed sizeable squadrons to the Mediterranean for a year or more. For three of these deployments ships were drawn from the Baltic Fleet and were used in operations against the southern side of the Black Sea exits during the third, fifth and sixth wars with Turkey.

Increasingly thereafter, Russia found herself confronting predominantly maritime powers. In the Black Sea, Britain used her naval strength to prevent Russian gains at the expense of the failing Ottoman Empire; Britain intervened directly in the seventh Turkish war (1853–56, Crimea), and the peace treaty forbade Russia a Black Sea Fleet; in the eighth Turkish war (1876–77), British pressure ensured that Russia would not gain control of the Straits. In the Far East, Russo-Japanese rivalry culminated in a disastrous war, and the loss of two Russian fleets. In 1918, the Western navies provided essential support to the forces of counterrevolution. As a consequence, Russia's naval policy was increasingly dominated by the requirement to defend four widely separated fleet areas against maritime powers who could concentrate their forces at will. The major warship construction program, which was initiated in 1945, was the fourth attempt in 65 years to build up a strong Russian Navy.

1945–60

In 1945, the Soviet Union lacked a battleworthy fleet, while its likely opponents were the "traditional maritime powers" who had recently demonstrated their capacity to project continental scale armies over vast distances of sea. The likelihood of maritime invasion of the Baltic and Black Sea coasts was considered substantial; naval requirements were carried over from before the war as Russia embarked on rebuilding a large, mainly conventional navy, with heavy emphasis on "medium-type" submarines.

In 1954, as a consequence of the post-Stalin reevaluation, the Soviet leadership downgraded the threat of seaborne invasion and gave first priority to the dangers of a surprise nuclear attack. This engendered a radical reappraisal of naval requirements and the decision to place primary reliance on long-range cruise missiles, to be carried by small-to-medium surface ships, diesel submarines and aircraft. The operational concept relied on the reach and payload of these weapons (which had still to be developed), to substitute for tactical mobility and large numbers of ships. This would also allow resources to be released from warship construction to the domestic economy.

Khrushchev brought 45-year-old Gorshkov to Moscow to implement these decisions, which had been strongly opposed by the Commander-in-Chief of the Navy (Kuznetsov), whom he replaced in early 1956. The building of cruisers was checked in midcourse, the mass production of medium-type submarines was sharply tapered to a halt, and while the destroyer escort, and subchaser programs ran their full course, their successor classes were put back 4 years. Seven of the thirteen largest building ways were reassigned to the construction of fish-factory and merchant ships.

The new concept of operations was predicated on engaging the enemy carrier groups within range of shore-based air cover and envi-

sioned a coordinated missile attack by strike aircraft, diesel submarines and light cruisers. These newly-designed units would begin to enter service in 1962. If the decisions taken in 1954 had been fully implemented, the result would have been a task-specific, defensively oriented navy, more firmly tied to home waters than at any time since the 1930's, with strategic delivery submarines as the sole exception.

However, by 1958 the basic premise that shore-based air support would be available over the encounter zone, had been falsified by increases in the range of carrier-borne aircraft; this allowed U.S. carriers to strike at Russia with nuclear weapons from the eastern Mediterranean and south Norwegian Sea. To meet this threat from distant sea areas it was decided to rely on nuclear submarines, and plans to double the latter's production were put in hand, with deliveries due to begin in 1968. The cruise-missile diesel submarine programs were canceled and as an expedient, their missile system was used to reconfigure the second generation of ballistic-missile units to SSGN. The decision to gamble on *long-range* surface-to-surface cruise missiles (SSM) as the primary armament of the fleet (a mistake which the Soviet Navy is only now finally working out of its system) was reversed, and the development of a horizon-range submarine system with organic target-location was put in hand.

At this same period the requirement for a sea-going helicopter platform to extend the range of airborne ASW coverage in arctic waters generated the decision to build the Moskva class helicopter carrier, which the Soviets classify as an antisubmarine cruiser.

1961-SHIFT TO FORWARD DEPLOYMENT

Contemporary Soviet naval policy stems from 1961, and President Kennedy's abrupt acceleration of U.S. procurement of strategic weapons.⁴ Soviet leaders were unpersuaded that this United States buildup of land-based and submarine-launched strategic missiles was a purely "defensive" move, and were seriously concerned that America was seeking to develop the capability for a disarming strike. The shift in Soviet "strategic-weapons" policy can be dated to this period.⁵ It involved a fourfold increase in the production of ICBM, together with a reversal of the trend towards larger warheads and area devastation, in favor of point targetting. But the effects on Soviet naval policy were even more fundamental.

At least until comparatively recently, Soviet military doctrine has not separated "nuclear deterrence" from the general concept of defence. Defense of the Soviet Union has relied on the capability to throw back any attack by the West, and then go on to win what would inevitably be a world war between two antagonistic social

⁴This included the sharp acceleration of the Polaris program and a doubling of the planned production rate of the new Minuteman solid-fueled ICBM, which was then completing development. The construction of 14 Polaris had been authorized progressively during the 3 years 1958-60. On Jan. 29, 1961, Kennedy authorized the construction of a further 27, of which 15 were to start building within 6 months. Minuteman and the earlier Titan II were to be deployed in underground silos remote from existing centres of population. At the beginning of 1962 it was announced that there would be 800 Minutemen in service by 1967, but in practice 800 missiles were already deployed by 1965; a further 200 missiles were added by mid-1967. The 1962 edition of V. D. Sokolovskij's "Voennaya Strategiya" (military strategy) makes specific reference to this increase in the rate of production; see pp. 102-105.

⁵See My "Soviet Strategic Weapons Policy: 1955-70" in "Soviet Naval Policy," pp. 486-502.

systems. Since "world war" is seen as a fight to the finish, victory is synonymous with survival, and it is in such circumstances that Europe must occupy a very special place in Soviet military strategy.

In the initial stages of such a war, the extent to which Western Europe is devastated will largely depend upon the Soviet choice of weapons. It is the potential availability of this adjacent and partly undamaged area on which to rebuild the Socialist System, that has allowed Russia to plan on the assumption that if "world war" were to be forced on her, it need not imply mutual suicide. And it was in this context that the major shift in the U.S. emphasis toward seaborne strategic nuclear weapons was so disturbing. These weapons were the only ones which, if withheld, would have some certainty of surviving the initial exchange and remain available to deny Russia the use of Europe to rebuild her social system.

The simplest way of countering this threat to the ultimate survival of the Soviet system was to remove the U.S. option of withholding these weapons, by making it unlikely that they would, in the event, survive. This required that they be attacked at the outbreak of war and meant that Soviet forces would have to be within weapon-range contact at the vital moment; i.e., they must already be deployed in the sea areas of threat.

The shift to forward deployment appears to have been decided in principle by the end of 1961, but the debate about means continued until 1963-64. It would seem that the operational concept which finally emerged was to extend the Soviet Union's maritime defense perimeters to cover the sea areas from which nuclear strikes could be launched and, by establishing an increasingly active presence in these areas, first to contest and, perhaps, ultimately to deny their use by the West for the deployment of strategic weapons. Meanwhile, a capability would be developed to follow the movement of all strategic delivery units when they sailed from their U.S. bases.

These measures would have to be introduced progressively over the following 10-15 years, as the necessary weapon systems and forces became available through a process of major conversion, modified new construction and, finally, new design and development. To achieve economy in numbers, the shift to forward deployment (which may have been seen in part as an interim expedient) was predicated on naval shore facilities being available in the forward operating areas. Countering forces were not limited to the navy and it seems likely that shore-based systems, including satellites and ballistic missiles, were taken into account from the start.

In 1961 the Soviet Navy was ill-prepared to meet these new requirements. There are no indications that it had been straining at the political leash while preparing itself for an oceanic role through local operations and training, and given the existing balance of forces at sea, there can be little doubt that the decision to move forward in strategic defense reflected national strategic imperatives, rather than long-stifled naval aspirations. Bearing in mind the high level of tension and the general tenor of the Western strategic debate at that time, the concept of relying on "the protection of peace" to safeguard ships in distant sea areas has more attraction *after* 10 years of successful experience, than it would have had in 1961-63.

In terms of operational deployment, the ordering of priorities would have been fairly clear. Set at 1,500 n.m. (the range of the Polaris A-2) and centered on Moscow,⁶ the dividers took in the Norwegian Sea and eastern Mediterranean—areas in which Western strike forces were already operating in 1961. Extended to 2,500 n.m. (the A-3 range), the dividers reached beyond the tip of Greenland, described an arc through the eastern Atlantic which cut the African coast about the Canary Islands, and then crossed the Arabian Sea between the Horn of Africa and Bombay. That was the extent of the area-defense problem in 1964. There was also the need to cover the fleet bases on the coast of North America and the transit routes to the operating areas.

1961-67

The initial phases lasted through 1967. The first significant Soviet naval exercise in the Norwegian Sea took place in 1961 and became an annual event. It grew steadily in scale, scope and complexity involving the Baltic and Northern Fleets in a series of related exercises within the general scenario of defending an extended fleet-area. Soviet naval operations in the Norwegian Sea were progressively more frequent, with a rising emphasis on ASW, and it became standard practice for Northern Fleet units to deploy whenever any significant Western naval force operated in the area. The perimeter of the Soviet maritime defense zone was pushed out to the Greenland-Iceland-U.K. Gap, with submarines stationed further forward in the Atlantic approaches.

A sustained presence in the Mediterranean was not attempted until 1964. Thereafter there was a gradual buildup in numbers and length of deployment, but operational activity remained low and in the absence of shore support, it was not possible to maintain deployment throughout the winter months. Preliminary approaches to persuade Egypt to allow access to her ports had been made as early as December 1961, but despite increasing pressure from Russia, Nasser refused to concede. However, the 1967 Arab-Israeli war reduced Egypt to a supplicant and the Soviet Navy gained access to port facilities and to the all-important airfields.⁷ The average length of individual deployment almost doubled, numbers on station in the Mediterranean rose sharply and for the first time a naval presence was maintained over the winter months. Since 1968, Western carriers have always been marked when in the eastern basin and nearly always when elsewhere in the Mediterranean. Soviet units intermingle with the Sixth Fleet's amphibious operational deployments and most Western exercise activity. Their own exercises are held in the eastern basin, a main emphasis being on ASW with a special interest in the problems of controlling the basin's approaches. Access to Egyptian port facilities was covered by a 5-year agreement signed in March 1968 and renewed in 1973, but when Soviet forces were asked to

⁶I take Moscow as the center of the circle, in part because this was the standard way of presenting the prevailing situation in Western journals of that period; that is, Western strategic delivery forces located on concentric circles, with Moscow at the bullseye. This would also have been the perspective of a Soviet military planner, and of course the defense of Moscow has always been given special priority by the Soviet leadership.

⁷See "The Mediterranean and Soviet Naval Interests" in "Soviet Naval Developments" pp. 344-357. For a somewhat different emphasis, see R. G. Weinland's "Soviet Transits of the Turkish Straits, 1946-70," pp. 325-344 in the same book.

leave Egypt in July 1972, the navy lost the use of their supporting airfields.⁸

1968-72

The second phase of the move forward, which began in 1968, took in the 2,500 mile circle-of-threat and also addressed the problem of the fleet bases in North America and their transit routes across the Atlantic. March 1968 saw the first Soviet deployment to the Indian Ocean and by the end of 1968, Somalia was being fostered as the *point d'appui* in the area, with Berbera serving as the main forward base and Aden as an alternative. Soviet suspicions concerning the Arabian Sea as a potential launch-area for Polaris submarines⁹ had been fed by the 1963 agreement to build a U.S. Navy VLF communications station at North West Cape in Australia, which could only be interpreted as developing the capability to communicate with submerged submarines in the Indian Ocean. These suspicions would have been reinforced by the 1966 agreement on the combined U.S./U.K. use of Diego Garcia, with the United States paying for the costs of developing the base.¹⁰

July 1969 saw the first Soviet deployment in the Caribbean, including a visit to Cuba. In September 1970, barges used in the support of nuclear submarines were delivered to Cienfuegos from the Northern Fleet and rest and recreation facilities were built ashore. Since then, Soviet naval detachments (usually including submarines and/or a tender) have visited Cienfuegos and Havana regularly. In April-May 1970, Northern Fleet aircraft refuelled in Cuba before returning to Russia, and in September 1972 they flew reconnaissance of the Western Atlantic from Cuban airfields. The Soviet Navy has meanwhile been probing U.S. reactions to the use of Cienfuegos as a forward operating base, which would bring them considerable advantage in terms of covering Norfolk and Charleston, the main bases for U.S. aircraft carriers and Polaris submarines. Instead of having to spend 20 days in transit from their Northern Fleet bases, Soviet submarines operating out of Cuba would be within 2 days' run of the attachment area.¹¹

On the opposite side of the Atlantic, February 1969 saw the first Soviet naval visit to Conakry in Guinea, which provided support to Sekou Toure's regime at a critical juncture. The Guinea Patrol was established in December 1970, after an attempted coup sponsored by Portugal; this earned further favor with Toure and also with the PAIGC, who were the likely inheritors of the Cape Verde Islands,

⁸ See G. S. Dragnich's "The Soviet Union's Quest for Access to Naval Facilities in Egypt Prior to the June War of 1967" in "Soviet Naval Policy" pp. 237-277. Dragnich's analysis highlights the persistence of Soviet efforts and the costs they were willing to shoulder to obtain this access.

⁹ Soviet concern for the Indian Ocean as a Polaris patrol area goes back at least to 1960. See article by I. Isakov in *Izvestia*, 7 November 1960, p. 5, which quotes a *Time* Magazine article (1 August 1960), as saying that Polaris will be stationed in the Indian Ocean. The Arabian Sea provides better target coverage of Russia and China than any other sea area.

¹⁰ See "The Pattern of Soviet Naval Deployment in the Indian Ocean, 1968-71" in "Soviet Naval Developments" pp. 425-441, particularly note 21. For a different viewpoint see J. M. McConnell's "The Soviet Navy in the Indian Ocean," pp. 389-406 in the same book.

¹¹ See "Soviet Naval Interests and Intentions in the Caribbean" in "Soviet Naval Developments" pp. 470-488. For a different perspective, see B. Blechman and S. Levinson, "Soviet Submarine Visits to Cuba" in "United States Naval Institute Proceedings," September 1975, pp. 30-39.

should their liberation movement succeed. In late 1973, Northern Fleet aircraft flew reconnaissance from Conakry which, with Cuba, now completes the Atlantic air surveillance triangle. The Soviet Navy's first visit to neighboring Sierra Leone in May 1971 again served to bolster the existing regime. Base facilities in this area would give the Soviet Navy access to the Cape Verde ocean basin and to the U.S. Navy's line of communication with the Mediterranean.

By 1971, 10 years after the decision to move forward in strategic defense, a steady and sustained level of deployment had been reached in the "inner" areas of the Norwegian Sea and the Mediterranean. By 1972 this was also achieved in the N.W. quadrant of the Indian Ocean, although at a more modest level. Additional forces are deployed to all three areas in matching response to Western operational initiatives. Meanwhile, Soviet naval units continue to visit Cuba and to pay attention to small West African states. By 1972, the pattern of forward deployment was complete, although the full structure was still not in place.

Although this general explanation of the *initial* shift to forward deployment is now widely accepted, many are reluctant to concede that the second phase followed the same strategic plan. But unless we are to allow pure coincidence, there are too many diverse facts to be accommodated satisfactorily by any other explanation. For example: the clear-cut geographic pattern; the political (but not strategic) insignificance of the small states being courted in West Africa; the heavy political cost of insisting on naval support facilities in Egypt; the absence of any Soviet naval presence in the South China Sea. These and other more ambiguous bits of evidence all fit snugly into the strategic hypothesis, but will not support an influence-building one. More detailed arguments are given in Appendix A.

One of the most frequent objections to this hypothesis is the assertion that the Russians *must* realize that it is impossible to deploy an effective counter to Polaris, an assertion which relies upon *Western* statements of the system's invulnerability. This objection ignores the fact that since 1963 the Soviet Union has rated the destruction of Polaris submarines as the navy's "most important task."¹² It ignores the many examples of Soviet willingness to expend substantial resources where the defense of the country is at stake, on projects where the chances of success are small, and the return on success is low. It ignores the Soviet Navy's own experience on the success of *Western* antisubmarine measures, which would have given them a rather different understanding of the odds in 1963. And it also ignores the growing evidence that the Soviet Union has devoted considerable research and development to her attempts to solve this problem.

SHIP AND WEAPONS DEVELOPMENT

The tempo of the shift to forward deployment appears to have been largely dictated by the availability of the appropriate forces. In 1961, the Soviet Navy was at a low ebb because of the cut-

¹² V. D. Sokolovskij, "Voennaya Strategiya", Voenizdat, Moscow, 1963, pp. 365-366. In August 1964, a long and authoritative article on general military matters referred to the destruction of Polaris submarines as the navy's "foremost task"; "Krasnaya zvezda", Aug. 25 and 29, 1964, two-part article by Marshal Sokolovskij and General Cheredichenko.

backs in naval construction resulting from the 1954 decisions and further disruption resulting from the reversal of plans in 1957–58. About the only thing going the navy's way at this time was the previous decision to double the production capacity of nuclear submarines, which meant that by 1968, 10 would be delivered annually . . . but that was still 7 years ahead.

The debate about means, which lasted until 1963–64, appears to have concentrated mainly on the role of surface ships against the Polaris submarine; in particular, on the requirement for a cruiser-sized class, and on the continued usefulness of antisubmarine helicopter carriers now that the geographical scenario had changed. These requirements appear to have been conceded only grudgingly, and in meeting them the navy had to make do with its existing building capacity, which it achieved by dropping the escort-ship from its inventory, and moving each ship-type down one yard to make room for cruiser construction. Meanwhile, major modification programs were authorized to convert existing classes of destroyer-sized ships to effective antisubmarine vessels, and to fit them with a strong self-defence capability to withstand a preemptive strike.

As this policy took effect, the result has been a growing distinction between the type of surface ship intended to operate in distant waters, and those assigned to the defense of fleet areas. The latter task can be discharged by relatively small, missile-armed units, supported by shore-based weapon systems and sensors. In contrast, ships on distant deployment must be able to carry out their mission in a hostile environment without external support; this requires a hull large enough to carry self-sufficient defense systems as well as those designed for the primary task, and implies a destroyer-size or larger ship. Those classes (new and modified) which have entered service since 1965, have had these characteristics. Their primary mission is indicated by their Soviet designator of "large antisubmarine ship." There is also some negative evidence to suggest that their main missile armament may be antisubmarine rather than surface-to-surface,¹³ although it could possibly be a dual-purpose system. Meanwhile, the layout of their gun systems suggests concern for a coordinated surprise attack, and the overall characteristics of these ships implies that they have been designed for a short, concentrated engagement, rather than for sustained operations in a hostile environment.¹⁴

¹³Unless the SS-N-10 has an antisubmarine capability, there is a glaring absence of any rapid-response long-range antisubmarine weapon system in these ships. The *Moskva*, which is designated an antisubmarine cruiser and was delivered before the other classes, carries an antisubmarine missile launcher, which meets this requirement; *Kuril* is also reported to carry such a launcher (Janes 1975–76). A weapon system therefore exists, and one would expect it to be carried by other large antisubmarine ships. It seems probable that this is in fact the case and that the only difference is in the launching system and stowage. The *Moskva*-type has a reload capability, whereas the *Kara*, *Kresta II* and *Krivak* do not, and the SS-N-10 launchers double as missile stowage. Supporting evidence is offered by the Kashin modification, which involves (*inter alia*): (a) fitting variable depth sonar and four after-facing missile launching cylinders, and (b) removing the after-facing 6-barrelled antisubmarine rocket launchers. The latter have been fitted to all large antisubmarine ships since 1962, including the most recent *Kara* (Janes 1975–76). Outwardly, the cylinders are similar to those in *Osa II* (SS-N-11), but it would seem more likely that they fulfill somewhat the same role as the antisubmarine rocket launchers they replaced. Finally, there is the matter of tasking and threat. If the SS-N-10 is an SSM system, are all these ships intended for use against the carrier, a target which is already well covered by submarines and aircraft? If not, what surface target do they have in mind? Western navies generally lack a surface-to-surface capability, and the threat to Soviet surface units is from submarines and air strike.

¹⁴See J. W. Kehoe's "Warship Design: Ours and Theirs" in "United States Naval Institute Proceedings", August 1975, p. 64, "Summary."

On the submarine side, the major impact of the 1961 threat reassessment was to change the configuration mix of the new family of nuclear submarines which were due to begin delivery in 1968, emphasis being shifted from attack to ballistic missile units. Meanwhile, the development of new submarine tactical weapon systems was put in hand, for fitting in the third generation of nuclear hull/propulsion units, scheduled to begin delivery in 1977-78.

THE ROLE OF STRATEGIC DELIVERY: 1945-72

So far, I have concentrated entirely on the task of countering the West's maritime capability, and we must now go back to review the role of Soviet strategic delivery submarines. This role stems from three sources: (1) The Russian Navy had a long and successful tradition of attacking warships in port, which was carried over into Soviet naval doctrine; (2) at the end of the war, the diesel-submarine/torpedo was the only delivery system available with the range and payload to bring atomic weapons to bear on the North American continent; and (3) Soviet military doctrine sees strategic nuclear weapons as the main force within a general war-fighting capability, on which Russia bases her defense. Taken together, this has meant that although the Soviets were the first to systematically exploit the submarine's potential for strategic delivery, the operational requirements were very different to those underlying the Polaris concept.

In the postwar period, Soviet strategic delivery submarines were given top priority in nuclear propulsion, warheads and ballistic missiles. Despite this, advances in U.S. antisubmarine capabilities, coupled with Soviet technological inadequacies, meant that the first generation of series production classes, which began delivery in 1958,¹⁵ were unable to meet the planned operational requirements. In 1958, priority was therefore shifted away from strategic delivery, and nuclear hull/propulsion units were reassigned to the counter-carrier role.¹⁶ As a further consequence it seems likely that, despite the doubling of the nuclear submarine building capacity, which would start delivering 10 units a year from 1968, it was originally planned that only two of these would be configured as ballistic missile units (Y-Class).¹⁷ However, the new threat of a disarming strike which emerged in 1961, gave renewed priority to seaborne systems. As a result, the SSBN production rate was raised from 2 to 6 per annum, at the expense of other configurations.

Meanwhile, there were progressive advances in missile systems including a steady increase in range: 1957—350 n.m., 1962—650 n.m., 1967—1300 n.m. and 1972—4200 n.m. While the first increase in range can be seen as routine design improvement, the second and third steps were almost certainly influenced by progressive improvements in the U.S. Navy's antisubmarine capability. The third step (which stems from the 1961 period) is particularly significant; this threefold increase in range allowed ballistic-missile submarines to

¹⁵ There were two diesel and two nuclear classes, one of each being armed with nuclear torpedoes (F- and N-Classes), the other being armed with the SS-N-4, 350 n.m. surface-launch ballistic missile (G- and H-Classes).

¹⁶ The E II Class. See p. 185 of "The Turning Points of Soviet Naval Policy", in "Soviet Naval Developments."

¹⁷ See p. 431 of "Current Soviet Warship Construction and Naval Weapons Development" in "Soviet Naval Policy."

strike at North America from the comparative safety of home-fleet antisubmarine defense zones.

These developments in missile capability were reflected in the task assigned to these submarines. The first generation units, which were armed with the two earlier systems, were limited to contributing to the naval task of attacking maritime communications, by means of strikes at naval bases and port complexes.¹⁸ The entry into service of the 1300 n.m. system allowed the missile submarine (Yankee) to be linked with the Strategic Rocket Forces, as comprising the "main force for deterring the aggressor and decisively defeating him in war."¹⁹ And with the advent of the 4200 n.m. system deployed in home waters, Gorshkov was able to claim that because of their greater survivability, submarine-launched ballistic missiles were a more effective deterrent than the ICBM.²⁰

PEACETIME EMPLOYMENT OF SOVIET NAVAL FORCES

The great increase in the range, payload and accuracy of modern weapons has allowed the deployment of strategic nuclear delivery systems aboard warships, which in turn has drawn forces forward to counter them. In consequence, a substantial number of naval units from both sides now continually carry out in peacetime what are essentially wartime tasks, such as SSBN patrols, antisubmarine surveillance, and the marking of aircraft carriers.

However, the shift to forward deployment also provided the Soviet Union with opportunities to exploit the presence of their naval forces in distant sea areas for political advantage. It coincided with a distinct hardening of Soviet attitudes toward the United States and the latter's overseas involvements, which occurred between the fall of Khrushchev and the middle of 1965.²¹ The resultant policy was the product of many different factors, but in terms of this analysis, the following may have had particular relevance; the availability of the 2500 n.m. A-3 Polaris system for deployment in the eastern Mediterranean;²² the public announcement of the Poseidon program in January 1965;²³ U.S./U.K. discussions about establishing a base at Diego Garcia in the Indian Ocean; the failure of the Soviet Union's U.N. proposal in December 1964, that the Mediterranean and Indian Oceans should be declared nuclear free zones; the increasing U.S. involvement in Vietnam and the bombing of Hanoi during Kosygin's visit in February 1965; and the growing rift between Russia and China.

These developments had two kinds of implications for the Soviet Union. On the one hand, there was a continued growth in the strategic threat to Russia from distant sea areas, both in terms of the range of sea-based nuclear weapons and the areas from which they could be launched. And on the other hand, the Soviet leadership was moving (perhaps reluctantly) into a position of having to react more positively against American overseas involvements, which were "smothering na-

¹⁸ V. D. Sokolovskij, "Voenneya Strategiya", Voenizdat, Moscow, 1963, p. 400.

¹⁹ Ibid., 1968 edition, p. 235.

²⁰ "Morskoj sbornik", February 1973, p. 21.

²¹ T. W. Wolfe, "Soviet Power in Europe" (Johns Hopkins University Press, 1971) p. 266.

²² On 5 September 1964, President Johnson announced that the A-3 system would be deployed later that month.

²³ The Soviet Union would have been aware of this program before this date.

tional liberation movements.”²⁴ From the naval viewpoint, these implications were mutually reinforcing. The shift to forward deployment had as its primary purpose the countering of U.S. strategic delivery units. This was to be achieved in part by extending the maritime defense zones to take in such areas as the eastern Mediterranean, in order to contest their unhindered use by Western navies. But these same forces would also be available to impede the traditional use of Western naval power to project military force in distant parts of the globe, and where possible, they could provide support to Soviet proteges.

This line of reasoning led to a significant elaboration of the functions of forward deployment. In certain limited areas, besides shadowing nuclear strike units, Soviet naval forces were to contest the West's unhindered use of the sea for the projection of military power. This new assertive policy may have been outlined at the 23rd Party Congress in March 1966,²⁵ but it did not become operationally apparent until 1967, perhaps because several new classes of warships were due to begin delivery about then. In April 1967, Brezhnev demanded the withdrawal of the Sixth Fleet from the Mediterranean.²⁶ This signalled a sharp rise in the navigational intransigence of Soviet warships in the Mediterranean and the Sea of Japan,²⁷ and the application in more distant waters of the policy of physical harassment which had long been the norm in “home” waters such as the Baltic and Black Seas. The following year saw a marked increase in the number of foreign visits made by Soviet naval units,²⁸ and the use of naval forces for political purposes rose progressively.

In the 4 years spanning 1968–71, the international image of the Soviet Navy changed radically. Before the 1967 Arab/Israeli war, it had been stretched to maintain a presence in the Mediterranean for 9 months of the year. By mid-1969, having gained access to Egyptian port facilities, numbers deployed had risen to 7–11 submarines and 9–13 surface combatants, with one or more SSM-armed units always on station and a substantial measure of shore-based air support. By the same date, the Soviet Navy had visited the Caribbean and had made significant contact with Guinea on the eastern side of the Atlantic. A form of continuous presence had been achieved in the Indian Ocean, there was an upsurge of naval visits, and to judge from the Western press, Soviet ships appeared to be everywhere. The impression of vigorous growth was reinforced by the new classes which began to enter service during this period, by the twofold increase in nuclear-building capacity and by the appearance of the antisubmarine helicopter-carrying cruiser. And with it all came the increasing use of Soviet naval units for specifically political purposes in distant parts of the world.

²⁴ Admiral Kasatanov, “Izvestia,” 8 January 1966.

²⁵ See the fourth Part of the First “Resolution on the World Situation,” of the 23rd Congress of the CPSU. See also Gorshkov's report on the Congress, which refers to being ready to “protect the achievements of socialism and inflict a crushing rebuff to any imperialist aggression”; “Morskoi sbornik,” May 1966, p. 10.

²⁶ At a conference of European Communist Parties, 23–26 April at Karlovy Vary, Czechoslovakia.

²⁷ This led to collisions in the Sea of Japan within 3 weeks, and in the Mediterranean within 3 months.

²⁸ See “Foreign Port Visits by Soviet Naval Units” in “Soviet Naval Policy” pp. 387–418.

The Soviet Navy had come a long way in 10 years. Nevertheless, despite the steady improvement in the quality of Soviet ships, one is struck by the niggardliness of the economic response to the reappraisal of the maritime threat in 1961–64. In order to meet a serious threat to the Soviet Union, the navy had been required to shift to forward deployment and to develop a whole range of new operational concepts. There was, however, no reallocation of shipyard facilities to meet these new requirements, and as far as one can judge, the navy's share of the defense budget remained constant.

THE CONTEXT OF THE GORSHKOV SERIES: 1970–75

The first article of the Gorshkov series was cleared for typesetting in December 1971, 8 months after the close of the 24th Party Congress, which approved the ninth 5 Year Plan. A review of the period 1970–75 should therefore give us some idea of the situation facing the Soviet Navy at the time the articles were being prepared, and of the general trend of the short-range decisions which were ratified by the Congress. It will not, however, reveal the longer-term decisions (or arguments) concerning the details of the navy's future role and the allocation of resources to naval development, although these are probably more significant in terms of the Gorshkov series.

THE NAVY'S POLITICAL STANDING

A surge of promotions to Fleet Admiral between 1970 and 1973²⁹ suggested that the relative standing of the navy might be on the upswing. However, when viewed within the context of the armed forces as a whole,³⁰ it seems that this partly reflected a process of catching up,³¹ and also reflected the general rationalization of the higher command structure which took place after 1967. It appears to have been conceded that the Northern and Pacific Fleets were of comparable standing to the key army commands and military districts, but the navy's share of 4–5 star appointments is not out of line with the total number of naval personnel.

Other evidence suggests that there has been no significant improvement in the navy's political standing, and that army domination of defense policy has if anything increased. The navy continues to come last in all listings of the five branches of service. More significant were the 1971 changes in the military representation on the Central Committee.³² The Strategic Rocket Forces (SRF), the navy and the air force remained the same, while the Main Political Administration (MPA) gained one candidate member, and Air Defense (*PVO*) gained two. Ground forces representation increased by six *full* members, and

²⁹Sergeev (Chief of Naval Staff)—April 1970; Lobov (Commander-in-Chief Northern Fleet)—July 1970; Borzov (Commander of Naval Aviation)—Marshal in early 1972. Lobov relieved Chabanenko as Assistant Chief of the General Staff in January 1972. Egorov (Commander-in-Chief Northern Fleet) and Smirnov (Commander-in-Chief Pacific Fleet) were promoted in late 1973. Smirnov relieved Kasatanov as Gorshkov's deputy in the Fall of 1974.

³⁰See John Erickson, "Soviet Military Power", Royal United Services Institute (London 1971) pp. 13–40, and an updated version in "Strategic Review", Spring 1973, Supplement pp. 7–38.

³¹Gorshkov was only 45 when made an Admiral (3-star) in 1955 on taking over as Commander-in-Chief, and had to wait until 1962 to make Fleet Admiral (equivalent to Army General). He was promoted to Admiral of the Fleet of the Soviet Union in October 1967 (one of 4 promotions of incumbents in the armed forces to more senior rank), and Kasatanov (his deputy and contemporary in age), was probably made Fleet Admiral at about this same period. This measured progress would have blocked promotion above Admiral for about a decade.

³²See John McDonnell, "The Soviet Defence Industry as a Pressure Group" in "Soviet Naval Policy", p. 104, figure 6.3, amended by subsequent analysis.

while candidate members declined from twelve to five, the latter is the byproduct of both upgradings to full membership and the deaths of four semiretired marshals since the previous party congress. From 1971, the armed services had a total of 20 full (i.e., voting) members of the Central Committee; 15 of these were ground force officers, the other four branches and the MPA having only one apiece. Since 1961 the ground forces have steadily increased their share of full members on the Central Committee, the largest jump being in 1971. In contrast, the navy had two full members in 1961, but dropped back to one in 1966, and remained there in 1971.

GORSHKOV'S PERSONAL STANDING

Gorshkov's reputation in the West derives entirely from his position as Commander-in-Chief during a period in which the Soviet Navy has achieved high visibility as the result of the decision to shift to forward deployment. But there is in fact little evidence to support the notion that skillful political maneuvering by Gorshkov is responsible for what is assumed to be the Soviet Navy's favorable institutional position. To give him the credit for the present size, shape and deployment of the Soviet Navy is to ignore the fact that throughout Gorshkov's incumbency, the Soviet Union has been faced with a substantial and growing capabilities-threat of nuclear attack from distant sea areas—a threat which has been of direct concern to the higher political leadership. One could as well suggest that it is the man with the paddle who provides motive power to a canoe being borne down the rapids. It is not even clear that Gorshkov has been very successful in using his paddle to steer with.

Until his recent series of articles, there were few indications that Gorshkov was a long-standing advocate of far-flung, balanced fleets; one could argue the reverse. Twenty years ago, he was brought to Moscow by Khrushchev to implement decisions which were primarily designed to release resources to the civilian economy. If they had been carried through they would have resulted in a task-specific, defensively oriented navy, more firmly tied to home waters than at any time in its history. The 1957–58 decisions (which were prompted by Western technological advances), would have partly broken these ties, to end up with an unbalanced fleet, depending wholly on submarines and aircraft for distant operations.

While it can be argued that these particular procurement decisions derived directly from the political leadership, no such defense can be offered where combat capabilities and operational readiness were concerned. Yet the shift to forward deployment seems to have come as an unwelcome surprise to the Soviet Navy, which was operationally ill-prepared for the move. As late as 1963, 7 years after he had taken over as Commander-in-Chief, Gorshkov had to lecture the fleet on the need to get to sea and stay there, so as to develop an ocean-going all-weather capability.³³ Gorshkov has subsequently referred to the need to “meet the qualitatively new requirements” which involved the “organic restructuring of the navy and the reorientation of traditional naval policy”.³⁴ This is hardly the picture of a navy straining at the political leash.

³³ “Krasnaya Zvezda”, 5 February 1963.

³⁴ *Ibid.*, 11 February 1968.

We may overlook Gorshkov's involvement with the decision to gamble on long-range SSM as the primary armament of the fleet, a mistake which the Soviet Navy is only now working out of its system. But it does remind us that his predecessor Kuznetsov was retired because of his resolute opposition to this narrow concept. By contrast, Gorshkov has remained Commander-in-Chief through a series of radical shifts in naval policy determined by the political leadership, and despite a continual underallocation of resources to surface warship construction, relative to the requirements being levied on the fleet. One of the strongest criticisms of Gorshkov within the Soviet Navy could be that in his professional capacity he has been unwilling to stand up to the political leadership, whether it was a question of operational concepts, or more recently, or trying to do too much with too few ships.

THE NAVY'S WAR-RELATED ROLES IN 1971-72

Soviet writing tends to use the two categories of "wartime" and "peacetime" when discussing the employment of forces. For our purposes it is more helpful to use three categories which distinguish between the different types of task to be discharged. The central role involves the continuous readiness in peacetime to discharge the wartime tasks of "participating in the attacks of the country's strategic nuclear forces" and "blunting the enemy's nuclear attacks from the ocean axes."³⁵ The context is "world war" with the Western capitalist system,³⁶ and this role extends from peacetime deterrence to active defense and strike at the outbreak of war. Distinct from the peacetime/wartime role is the purely wartime role (primarily involving war-fighting) and the purely peacetime role, which is not concerned with "world war."

THE WARTIME ROLE

Soviet doctrine avoids being categorical about the nature of a future "world war,"³⁷ but a comprehensive role for naval forces was outlined in all three editions of Sokolovskij's "Military Strategy,"³⁸ which noted that although geographically extensive, naval operations were not expected to be decisive. Naval tasks included attacks on sea lines of communications, although the continued relevance of the latter was a matter of dispute in naval circles.

However, Sokolovskij's work begs the larger questions concerning the likelihood of nuclear war, the length of such a war, whether it is even reasonable to think in terms of fighting and winning such a war, and the possibility of full-scale nonnuclear war or of limited

³⁵ Gorshkov gives these as 2 of the 3 tasks which comprise a great-power navy's basic mission in a world-wide nuclear war. *Msb.* 73/2/21/8; 131/2/2.

³⁶ See P. Vigor, "The Soviet View of War," "Soviet Naval Developments" (supra), pp. 16-30. Also P. Vigor, "The Soviet View of War, Peace and Neutrality", (London: Routledge & Kegan Paul, 1975).

³⁷ See M. P. Gallagher, "The Military Role in Decision-Making" in "Soviet Naval Policy," pp. 55-56, on this point.

³⁸ V. D. Sokolovskij, "Voennaya Strategiya", Moscow 1962, 1963, and 1968. See pp. 362-367 of the 1968 edition.

war with the West. Such questions have been the subject of debate within the Soviet Union since at least the early 1960's, since when there had been major Soviet developments. These include the build-up in missile inventories, the achievement of nuclear parity and the shift toward detente, and the increased readiness to accept the Western concept of deterrence based on mutual assured destruction. It is therefore quite possible that in 1971 the navy's war-fighting role was in danger of being de-emphasized, and this may indeed have happened.³⁹ Not because the future contingency of war with the West had been ruled out, but because the significance of maritime operations in the post-exchange phase of a nuclear war was seen to be low, and because the possibility of a Western-initiated conventional war was thought to be minimal.

THE WARTIME/PEACETIME ROLE

With the entry into service of the Delta SSBN and the codification of the submarine's strategic role in the SALT accords, the naval contribution to deterrence and nuclear strike was assured. However, it is possible that in 1971-72 the question was being debated of whether the SSBN force should become an organic component of the Strategic Rocket Forces.⁴⁰ This would introduce major problems of control and coordination for the Fleet Commanders and the Naval High Command. There may also have been suggestions that with the introduction of the Delta SSBN, and its ability to launch strategic strikes from the protection of home waters, the requirements for other naval forces to operate in direct support of SSBN was thereby reduced.⁴¹

The other component of the wartime/peacetime role, the task of countering Western seabased strategic delivery systems, was also receiving due priority in 1971-72, as is shown by the pattern of naval deployments, by operational procedures in times of crisis, and by Soviet pronouncements on this score.⁴² However, with the emphasis on a multiple arms solution to this problem, it is possible that Gorshkov was concerned that in the years ahead the navy would lose control over these operations, particularly if radical new systems and platforms were to be introduced by the end of the decade. Nor is it clear whether developments between 1967-72 were in fact one stage of a progressive process, or merely an interim solution. The low surface building rates, the continued lack of afloat support and the dependence on politically insecure foreign bases, combine to suggest that they may only represent a short-term expedient. Meanwhile, a very different long-term solution may now be under development, which could be less favorable to the navy's institutional interests.

³⁹This is suggested by Gorshkov's 1974 Navy Day article (*Pravda*, 28th July) in which he states that the mission of "combatting the enemy fleet" now has lower priority than operations against land targets and the defense of Russia against such attacks. I am indebted to James McConnell for this point.

⁴⁰That this has taken place might be inferred from a standard listing of the five branches, in which the SSBN force neither appears as a coequal of the SRF (as has generally been the case since about 1968), nor is it referred to in the naval section which is listed last (as usual). See S. L. Sokolov, "Krasnaya zvezda," Feb. 23, 1974. I have not followed up and researched this point systematically.

⁴¹See B. Dismukes, "The Soviet Naval General Purpose Forces: Roles and Missions in Wartime," in "Soviet Naval Policy", pp. 576-582 for a discussion of this requirement.

⁴²For example, A. A. Grechko, "The Fleet of Our Homeland," *Msb* 71/7. See also Gorshkov on the need for continual readiness, the increased significance of "the battle for the first salvo," and the reference to marking Western fleets. *Msb*. 73/2/22, 23; 131-133.

PROSPECTS

Clear-cut evidence is lacking, but there would seem to have been several valid operational reasons why modifications to the navy's long-term war-related role may have been under discussion in 1971-72. There was also the long-standing debate on the best means of conducting combat operations at sea,⁴³ the emphasis on multiarms solutions, persistent army criticism of money spent by the navy,⁴⁴ and the continuing discussion about the proper ratio between branches and arms of service.⁴⁵

THE NAVY'S PEACETIME ROLE

The Soviet Navy began its shift to forward deployment more than 10 years ago, and we therefore have a growing body of fairly concrete evidence concerning its peacetime role. Soviet pronouncements refer to this role in general terms as "defending (or securing) state interests," a nebulous formulation, whose scope has yet to be systematically researched.⁴⁶ They also talk of the navy's "international duty," of "increasing Soviet prestige and influence" and of "rebuffing imperialist aggression." While not losing sight of the all-encompassing scope of "securing state interests", it is useful to discuss Soviet naval activity in terms of four major categories: establishing a strategic infrastructure; countering imperialist aggression; increasing prestige and influence; and protecting Soviet lives and property overseas.

ESTABLISHING A STRATEGIC INFRASTRUCTURE

The first category covers the task of establishing the physical, political and operational infrastructure required to support the Soviet Navy's war-related task of countering Western seabased strategic delivery systems. The task is not referred to openly and I have inferred its implicit existence from the pattern of naval operations and port visits over the last 10 years. I believe that this task provides the primary motive for a broad span of decisions ranging from promoting a coup in a client state, to acquiring base rights by barely concealed coercion. Because it concerns the security of the homeland, this task is likely to be backed by a high level of political commitment, and

⁴³ Gorshkov has referred to arguments in the mid-fifties that naval roles could be taken over by shore-based missiles; "The Development of Naval Science," *Msb.* 67/2/19-20. See also H. Ullman's discussion of the debate in the early sixties, "The Counter-Polaris Task," "Soviet Naval Policy," pp. 586-591.

⁴⁴ Herrick refers to signs that existing allocations to naval development were under attack: R. W. Herrick, "The Gorshkov Papers Revisited" (unpublished study, Mar. 13, 1974). He draws attention to a book review in "Istoria SSSR", November-December 1970, in which A. G. Kavtaradze implicitly criticizes naval allocations made at the army's expense.

⁴⁵ See A. A. Grechko, "On Guard for Peace and the Building of Communism," Moscow 1971; *JPRS* 54602, p. 45. "It is essential in the future to seek out . . . the most effective ratios between the Branches of the Armed Forces and between the Arms of the Branches . . .".

⁴⁶ I suspect that there is some debate as to just what should be categorized as "state interests," and how far the Soviet Union should be prepared to go in promoting and protecting them. Gorshkov recently claimed that in 1941 the Red Fleet had the capability "to defend state interests in contiguous naval theatres" (*Msb.* 72/8/24/5). In 1962, he gave it as an (additional) naval task, which was the particular responsibility of the submarine force; the context suggested that the term was possibly being used as an euphemism for "strategic strike," which could not properly fit within the meaning of "defending the homeland from attack from the sea." ("Krasnaya zvezda" (K.Z.) Oct. 30, 1962). By 1965 it had been linked with the merchant fleet (K.Z. July 13, 1965). For an extended discussion of this term see J. McConnell, "The Soviet Navy in the Indian Ocean", Center for Naval Analyses, Washington, Professional Paper No. 77, August 1971 (reprinted in "Soviet Naval Developments," pp. 392-400).

the evidence shows a willingness to accept political costs as long as the strategic objective is furthered. Of course, once such an infrastructure is established, it can be used to support other missions in the best Mahanist traditions. However, if the wartime/peacetime role is downgraded, or lapses, then the level of political commitment is likely to drop.

COUNTERING IMPERIALIST AGGRESSION

In the Soviet lexicon, the term "imperialist aggression" includes the deployment of U.S. seabased systems within range of Russia, countering which has already been covered under the war-related role. For our purposes it is more useful to limit the scope of this task to challenging/countering the peacetime employment of Western forces against the interests of "progressive states" and the "national liberation movement". In areas such as the eastern Mediterranean, where additional naval forces were deployed during the 1967, 1970, and 1973 crises, this task is upstaged by the more important war-related task of countering the carrier's nuclear strike potential, and Soviet naval units clearly had the latter as their only priority until the danger of escalation was past. The berthing of Soviet naval units in Port Said in 1967 might come within the category of countering imperialist aggression, except that it took place a full month after the end of the war, and reflected the newly gained access to Egyptian port facilities. The first clear example of this task is therefore the establishment of the "Guinea Patrol" in December 1970, apparently to deter further Portuguese-supported seaborne attacks on Conakry.⁴⁷ The next example was the despatch of Soviet naval detachments to the Indian Ocean in December 1971, in reaction to the deployment of British and U.S. carrier task forces during the Indo-Pakistan war.⁴⁸ This was followed by the reactive deployment of Soviet forces to the South China Sea after the U.S. mining of Haiphong in May 1972,⁴⁹ and there were further reactive deployments to the Indian Ocean during the 1973 Arab/Israeli crisis. The most recent example was the visit of Soviet units to Latakia in November 1974, when Syria feared an attack by Israel.⁵⁰

INCREASING PRESTIGE AND INFLUENCE

Showing-the-flag through naval port visits increased sharply after 1968, but the majority of such visits continue to be "operational" (i.e., to meet the operational requirements of the visiting ships), and include a very high proportion of submarines.⁵¹ However, the task of "increasing Soviet prestige and influence" assumed a new dimension in 1972. It has since encompassed port-clearing operations in Bangladesh (April 1972-mid-1974) naval involvement in the Iraq/Kuwait border dispute (April 1973), ferrying Moroccan troops to Syria (April-July 1973) and minesweeping the Gulf of Suez (July-November

⁴⁷ J. McConnell, "The Soviet Navy in the Indian Ocean", op.cit., p. 398.

⁴⁸ J. McConnell and A. M. Kelly, "Superpower Naval Diplomacy in the Indo-Pakistani Crisis", Center for Naval Analyses, Washington, Professional Paper No. 108, February 1973; reprinted in *Soviet Naval Developments*, pp. 325-343.

⁴⁹ R. G. Weinland, "Analysis of Admiral Gorshkov's 'Navies in War and Peace,'" "Soviet Naval Policy," p. 567.

⁵⁰ I am indebted to R. Weinland for this point.

⁵¹ Oral presentation by Anne M. Kelly to the third annual seminar on Soviet Naval Developments, Halifax, September 1974.

1974).⁵² There were also the large-scale "Okean" naval exercise/demonstrations in 1970 and 1975.

PROTECTING LIVES AND PROPERTY

The one clear-cut example of the navy "protecting Soviet lives and property overseas" involved the deployment of three warships to Ghanaian waters at the end of February 1969. This appears to have effected the release of two trawlers which had been held by Ghana for 4½ months, despite other forms of Soviet diplomatic and economic pressure.⁵³

OVERVIEW

Any particular operation may further the objectives of more than one of these four peacetime tasks. The Guinea Patrol "deterred imperialist aggression" and "increased Soviet prestige and influence" in Africa. But its continuation after the Portuguese threat evaporated in 1974, suggests that its major justification may have been to "establish the strategic infrastructure" by securing access to base facilities in that area. Tasks may also be in conflict with each other, and there is probably a tendency for the military imperatives of the "strategic infrastructure" task to work against the more diplomatic requirements of "increasing prestige and influence."

Reviewing the last 10 years of Soviet naval operations, the greater part can be explained by the war-related tasks, by the need to establish the strategic infrastructure to support these tasks, and by low-pressure political exploitation of the naval presence in distant waters. However, between 1970-72 there was a marked increase in operational activity directly in support of the two peacetime tasks of "countering imperialist aggression" and "increasing Soviet prestige and influence," including the deployment of forces specifically to these tasks. The upward trend appears to have levelled off in 1972-73.

PROSPECTS

This raises the question of whether the increase merely reflected a combination of opportunity and improved capability, or whether it stems from a policy decision reached in 1970 and ratified at the 24th Party Congress. Was there a decision to place greater emphasis on the political use of a military presence in peacetime? And more important, did this include an increased readiness to use military *force* to "secure state interests" in distant areas?

The evidence is still ambivalent. Official pronouncements have long referred to the Soviet Union's support of progressive forces and so

⁵² For an overview see R. Weinland, "Soviet Naval Operations: 10 Years of Change" in "Soviet Naval Policy", pp. 382-383. For details see: Bangladesh—C. C. Petersen, "The Soviet Port Clearing Operation in Bangladesh", "Soviet Naval Policy", pp. 319-340; Iraq/Kuwait—A. Kelly, "The Soviet Naval Presence during the Iraq/Kuwait Border Dispute," "Soviet Naval Policy", pp. 287-306; Suez—C. C. Petersen, "The Soviet Union and the Reopening of the Suez Canal" (forthcoming). All three studies have been published separately as Professional Papers by the Center for Naval Analyses, Washington.

⁵³ The trawlers were arrested in October, on suspicion of complicity in a plot to overthrow the President. See R. Weinland, "The Changing Mission Structure of the Soviet Navy," "Soviet Naval Developments", pp. 301-302. A factor in the decision to use naval force in this "imperialist" manner, may have been the Soviet interest in acquiring base facilities in Guinea. See "The Evolution of Soviet Naval Policy, 1960-1974," "Soviet Naval Policy," pp. 528-529.

forth, without any precise indication of its scope and limits. Identification of a significant change in the wording of such pronouncements would require systematic analysis which has yet to be undertaken. Meanwhile, three works published in the wake of the 24th Party Congress provide contradictory evidence. Marshal Grechko's "On Guard for Peace and the Building of Communism", which is tied directly to the Congress decisions, places primary emphasis on combat readiness for general war and discusses international commitments in terms of other socialist states.⁵⁴ "Military Force and International Relations", is also linked with the Congress. Edited by V. V. Kulish of the Institute of World Economics and International Relations (IMEMO), it makes specific reference to the increased importance attached to the role of a Soviet military presence in restraining imperialism in various regions of the world. In contrast, "International Conflicts", a joint product of IMEMO and the Institute of U.S. Studies, but a self-styled "scholarly work," refers to the U.S. Navy's role in the Middle East conflict and the Bangladesh crisis, and makes no mention of the presence of Soviet naval forces in either case, or of direct Soviet military involvement in Egypt.⁵⁵ And finally, Weinland has drawn attention to what seems to be a subsequent adjustment by Grechko of his 1971 position, bringing him to acknowledge a greater role for the armed forces beyond the borders of the Soviet bloc.⁵⁶

It seems clear that the 24th Party Congress endorsed an increased emphasis on the role of a Soviet military *presence* in distant parts of the world. But this does not necessarily imply an increased readiness to commit Soviet forces to *combat* in support of Soviet interests in these areas. An interesting development in the last 3 years has been the appearance in conflict zones of troops from North Korea, North Vietnam, and Cuba, manning the more sophisticated Soviet weapons systems on behalf of Soviet client states or movements.⁵⁷ It would appear that these forces, drawn from the "world revolutionary movement," have taken over and considerably extended the limited combat role previously played by Soviet personnel in Korea, North Vietnam, the Yemen and Egypt.⁵⁸ The Soviet Union continues to provide mili-

⁵⁴ A. A. Grechko, "Na Strazhe Mira i Stroitel'stva Kommunizma", Moscow 1971. A 112-page booklet designed for "a broad range of readers" which "describes the great historic mission of the Soviet Armed Forces, and the increased tasks posed for them . . . by the 24th CPSU Congress" (JPRS translation No. 54602, Dec. 2, 1971).

⁵⁵ V. V. Kulish, "Voennaya Sila i Mezhdunarodnye Otnosheniya", Moscow, 1972, pp. 135-137 (JPRS translation No. 58947, May 8, 1973). For pertinent quotations see R. Weinland, "Soviet Naval Operations" (op. cit.), note 4, pp. 385-386; V. V. Zhurkin and Ye. M. Primakov, "Mezhdunarodnye Konflikty", Moscow 1972 (JPRS translation No. 58443, Mar. 12, 1973). These two works were published by the same house, and released to the press within a month of each other (August/September 1972). The authors of the Kulish book are members of the military-political section of IMEMO. The Zhurkin-Primakov book represents the preliminary stage of a long-term project.

⁵⁶ In an informal memorandum, Weinland compared an article by Grechko in May 1974 with the general trend of earlier statements, including a comparable article in May 1973. Weinland identified a distinct shift in emphasis in Grechko's description of the role of the armed forces toward direct support of Soviet foreign policy. John McDonnell notes that Grechko's 1974 article followed the same general line as that of A. A. Yepishev (Chief of the Main Political Administration of the Armed Forces), in a book released to the press at the end of 1972. A. A. Yepishev, "Moguchee Oruzhie Partii" (Mighty Weapon of the Party), Moscow 1973 (JPRS No. 60713); A. A. Grechko, "On Guard Over Peace and Socialism," *Kommunist*, No. 7, May 1973 (JPRS No. 59348); A. A. Grechko, "The Leading Role of the CPSU in Building the Army of a Developed Socialist Society," "Voprosy istorii" KPSS, No. 5, May 1974 (FBIS "Daily Report": Soviet Union, Vol. III, No. 105, May 30, 1974).

⁵⁷ The United States may have set the fashion by using South Korean troops in Vietnam.

⁵⁸ This development may stem from the unsatisfactory Soviet experience in Egypt between 1970-72. The Soviet Union has also facilitated participation by Arab forces (other than Egyptian and Syrian) in the Middle East conflict zone.

tary training and advisers, together with the necessary arms, and it has also shown an increased willingness to commit its strategic logistic capability to support military operations which are actually in progress.

Although the direct involvement of Soviet forces in combat cannot be ruled out, official statements stop short of implying such support, and there is thought to be considerable army reluctance to becoming embroiled in overseas adventures. In Soviet discussions of the subject, the emphasis is on the continuing change in the correlations of forces in Russia's favor. It is this historical process which is meant to be thwarting traditional U.S. policies based on a "position of strength," and which makes the mere presence of Soviet forces an effective deterrent to "imperialist aggression." Of course, the manner in which this policy evolves will depend greatly upon the results it achieves and the type of response it evokes from the West.

THE NAVY'S SHARE OF NATIONAL RESOURCES

It is still too early to be certain, but it would seem that the 24th Party Congress did not authorize any significant increase in the allocation of resources to the navy. Nor however, does it seem to have cut its existing share. Writing in early 1971, Marshals Grechko and Zakharov both stated that time had proven that the right course had been chosen for the development of the navy.⁵⁹ Although this refers to long-range policy rather than resources, it does imply that no major change was foreseen, which is also the tone of Grechko's Navy Day article in July of the same year.⁶⁰

This assessment is supported by the absence of information suggesting an increase in nuclear submarine construction. On past experience, a new generation of submarines may be expected to begin delivery in 1977-78, and it seems likely that U.S. officials would have leaked evidence of a higher building rate by now. Future surface warship construction is less clear, since a new family of major units may not be due before 1980 and there is some spare yard capacity. However, afloat support ships have short lead times, and there has been no increase in their rate of buildup.

If we return then to review the situation facing the Soviet Navy in 1971, we see that the process of restructuring their distant-water surface force was well underway; it was, however, proceeding at a relatively modest pace, with no significant increase in delivery rates above the niggardly sixties. Three classes of new-construction large antisubmarine ships were being built; the 9,000-ton *Kara* at one a year; the 6,500-ton *Kresta II* at about two units every 3 years; and the destroyer-sized *Krivak* at a little more than two a year. Two of the *Moskva*-class of antisubmarine (helicopter) cruiser had entered service, and the first of the *Kuril*-class (twice as large but probably having the same primary role) was due for delivery in late 1973, with at least one more to follow. There were three major conversion programs of older destroyer-sized units; one had completed (8 SAM *Kotlin*), a second was progressing slowly (8 *Krupny/Kanin*) and a third (4 *Kildin*) was shortly to get under way.⁶¹ The more modern

⁵⁹ Quoted by Herrick. Zakharov in "Sovietskaya Rossiya," Jan. 19, 1971, and Grechko in Pravda, Feb. 23, 1971.

⁶⁰ A. A. Grechko, "The Fleet of Our Homeland," Msb. 71/7.

⁶¹ It is probable that the major weapon systems used for these conversions derive from the cancellation and rearrangement of the surface programs originally planned for the sixties.

Kashins (20 units) were to have their ASW capability upgraded and two of the old *Sverdlov*-class cruisers were being converted to command ships. The navy had just taken delivery of its first fast replenishment ship (a modified civilian tanker) and a smaller custom-built class was about to begin delivery. Looking ahead, by 1980 the Soviet Navy could expect to have 4-5 air-capable antisubmarine "cruisers," about 35 large antisubmarine ships of 6,000-9,000 tons, and about 65 destroyer-sized units, including the 20 conversions, whose hull and machinery would by then be 20-25 years old. In terms of the tasks being levied on the surface forces in 1971, the new-construction programs are likely to have seemed rather austere.

The submarine picture was rosier. Ten nuclear units were entering service a year, four attack and six SSBN. The *Delta*, carrying long-range ballistic missiles which could be launched from the relative safety of home waters, would begin to enter service in 1973-74, as would improved versions of the two attack classes (*Victor* and *Charlie*). A family of third generation nuclear submarines would start delivery in 1977-78, and we can assume that they have been designed to meet the new requirements which were identified in 1961-65. A new class of conventional submarine had begun construction by 1971, and a radical submarine-launched tactical ballistic missile was completing development. Looking ahead to 1980, the navy might expect to have about 190 nuclear submarines (about 60 strategic-ballistic and 130 tactical-attack), and perhaps as many as 150 nonnuclear units less than 25 years old.

In the aerospace field, two new types of long-range ASW aircraft were entering service, and the use of V/STOL aircraft from the anti-submarine cruiser was being evaluated. Satellite surveillance and communications system were operational, and the methods of using land-based missiles against naval targets had been developed.⁶²

Of course we can only guess at the full range of future prospects known to Gorshkov in 1971-72. It does, however, appear that research and development on possible means of countering the threat from *Polaris* received high priority throughout the 1960's, and it seems likely that at least some of the results were expected to be ready for operational application during the latter half of the seventies. Some analysts are convinced that the Soviet Union has adopted a highly innovative approach to the submarine problem and has had a fair measure of success. They therefore expect new sensor and weapon systems, and original types of platforms and propulsion systems, to begin entering operational service by the end of the decade.⁶³

⁶² In discussing the role of the Strategic Rocket Forces, Grechko includes the task of destroying "enemy means of nuclear attack and troop and naval groupings in theatres of military operations on land and sea." ("A Socialist, Multinational Army," *Pravda*, Dec. 17, 1972). Deployment patterns led me to believe that the 6th Fleet had been targeted by land-based missiles since the middle sixties.

⁶³ K. J. Moore and N. Polmar highlight the Soviet emphasis on nonacoustic methods of submarine detection, the use of satellites in this and related roles, and the concept of the extended ASW team which includes satellite, air, submarine, surface ships and shore-based missiles. They note discussions in Soviet journals of new methods of submarine propulsion. They also draw attention to the Soviet development of wing-in-ground (WIG) effect vehicles and their suitability as platforms for high speed sea-area search, using multiple sensor arrays including anomaly detectors. Oral presentation at the third annual seminar on Soviet Naval Developments in Halifax, September 1974; see also N. Polmar, "Soviet ASW," "United States Naval Institute Proceedings" (forthcoming, May 1976).

However, the more immediate question facing Gorshkov in 1971–72 was whether present and future capabilities were adequate to meet the increasingly varied requirements which were being levied on the fleet. And on this score there must be considerable doubts. Although the development of the submarine force and naval aviation was receiving due priority, the majority of nuclear submarines had task-specific configurations and the allocation of resources to the surface forces was relatively meager. The Soviet Navy was not a “balanced fleet” in the “general purpose” sense, and the imbalance was, if anything, tending to increase. Meanwhile, although the shift to forward deployment had leveled off in 1971–72,⁶⁴ it is likely that the distant water forces were suffering from operational overstretch. There was already some evidence of this in the irregular pattern of surface ship deployments in the Mediterranean in 1968–69,⁶⁵ in the expedients used to reduce submarine transit time and the type of submarine deployed,⁶⁶ and in the low combat capability of the Indian Ocean detachment and the length of the individual deployments.⁶⁷ Nor is this surprising, when we consider the operational costs involved in a wholesale shift to forward deployment.⁶⁸ To these demands must be added the increased political exploitation of the Soviet naval presence, coupled with a policy of reacting to a wider range of U.S. naval initiatives than hitherto. It is my impression that by 1971–72 the Soviet Navy was suffering from the well-known problem of being asked to do too much with too few ships.

It is true that the *quality* of ships on distant deployment was steadily (if slowly) improving, but their geographical dispersion meant that *quantity* was becoming increasingly important. On a 25-year replacement cycle, the building rates in 1971–72 would maintain the number of distant-water surface ships (i.e., destroyer-size and above) at their existing strength of about 110 units.⁶⁹ But the adequacy of that number

⁶⁴ See R. Weinland, “Soviet Naval Operations: 10 Years of Change,” “Soviet Naval Policy,” pp. 375–386. All areas peaked during 1971 except for the Indian Ocean, which saw a slight increase in steady-state deployment in 1972.

⁶⁵ See “The Soviet Mediterranean Squadron: January 1968–June 1969,” “Soviet Naval Developments,” Table 27.1, pp. 384–385. This is the only period for which such detailed cover is available, but I have the impression that the same pattern extended into 1970 at least. During this period the Squadron still depended heavily on ships built during the first half of the fifties and designed for operations within range of shore-based air cover, on first-generation SSM systems, and on escort ships designed for working closer to shore.

⁶⁶ The Soviet Navy began to deploy their submarines “in convoy” on the surface in 1969, almost halving transit time to the Mediterranean. The general shortage of attack submarines is suggested by the use of Zulus, first generation (1945 design-philosophy) diesel submarines, in the Mediterranean. Similarly with the use of the Juliet SSG as an alternative for the Echo SSGN.

⁶⁷ See “The Pattern of Soviet Naval Deployments in the Indian Ocean: 1968–71,” “Soviet Naval Developments,” Table 30.1, pp. 428–431. In 1970–71, the steady-state deployment comprised a Kotlin gun-destroyer, an Alligator LSV, a Foxtrot diesel submarine and a T-s58 submarine rescue ship. The Kotlin spent 6 months deployed, by the end of which the efficiency of its sensor systems would be seriously degraded. The size of the detachment and the combat capability of individual units have improved somewhat since 1971, but the problems of maintaining sophisticated equipment in hot and humid climates are considerable.

⁶⁸ See “The Economic Costs of Forward Deployment,” “Soviet Naval Development,” pp. 231–235.

⁶⁹ I use “distant-water” to denote the warship’s capability and not its role. I have taken the destroyer-size unit as the lower limit because the Soviet Navy is no longer building a 1,000–2,000 escort-size ship and there appears to be a growing distinction between the capabilities of “distant-water” classes and those which are designed to operate within range of shore-based support (see “Current Soviet Warship Construction and Naval Weapons Development,” “Soviet Naval Policy,” pp. 439–440). Only a proportion of the 110 distant-water units would be available for sustained deployment, the remainder being required for tasks in the fleets and for special deployments. In considering the adequacy of this number of ships, it should be noted that during the first 10 years of forward deployment, the Soviet Navy had to make considerable use of the 1,000–2,000-ton escort classes, together with the smaller general-purpose ocean minesweepers which, although useful as pickets, submarine guard ships, etc., have a very limited combat capability. During 1968–69, these two types made up 35–40 percent of the combatants on station in the Mediterranean. Another “stand in” is the Alligator-class landing ship, which has been the main type used for the Guinea Patrol and which, with the ocean minesweeper, made up 50 percent of the steady-state combatant deployment in the Indian Ocean during 1970–71 and continues to comprise about one-third.

would depend on the tasks to be discharged and the likely strength of the opposing forces. In the latter context Gorshkov would be aware that during the previous 10 years the navies of the capitalist bloc⁷⁰ had taken delivery of 2 to 3 times as many ocean-going surface ships (over 1,000 tons) as had the Warsaw Pact, and that if allowance was made for size and combat effectiveness, the disparity was more like 3 to 4 times as many.⁷¹ The capitalist bloc had even built some half dozen more nuclear submarines during the period. Only in diesel submarine deliveries did the Soviets have a substantial lead, since a large proportion of Western units were smaller than 700 tons. Of course, by 1971-72 Russia was building twice as many nuclear submarines a year as the United States, but 60 percent of these were task-specific strategic-ballistic units. Meanwhile, the West as a whole was continuing to allocate substantially more resources to distant-water surface warship construction than was the Soviet Union. Nor were the auguries very reassuring. Between 1965 and 1969, U.S. outlays on non-Vietnam naval programs had increased by 36 percent (17 percent in real terms); and between 1969-72, U.S. Government commitments to naval expenditure increased by 13 percent, whereas the army and air force were but by 18 percent and 13 percent respectively, leaving the navy with the largest share of the defence budget.⁷² Within NATO, concern over Soviet deployments had prompted an unprecedented degree of continuous operational cooperation between the different navies and an increased willingness to devote funds to naval procurement and the development of shipboard SSM systems.

Given the limited capabilities of his forces in distant sea areas, Gorshkov may have had reservations about a more assertive naval policy in support of client states. An increased emphasis on the role of a Soviet military presence in countering imperialist aggression was likely to bring short-term benefits; but in the longer term, to be effective such a policy must be backed by a willingness to use force if necessary. And although there was reassuring evidence of a restrained American response in a wide range of maritime situations, including the *Eilat* sinking and the *Pueblo* confrontation, Gorshkov must have been well aware of the exposed nature of his distant deployments, and how the various detachments would fare in a showdown with a U.S. carrier task force.

THE WIDER POLITICAL CONTEXT

Where did these primarily naval factors fit within the broader considerations of Soviet national policy in 1971-72? It is generally considered that the dominant concern of the political leadership at this period was the state of the Soviet economy and the requirement to upgrade individual management, productivity and technology.⁷³

⁷⁰On the capitalist side I include the NATO navies (including France, but not Sweden or Spain), plus Australia, New Zealand and Japan in the Pacific, since Russia would expect to have to contend with these forces in the event of war. I arbitrarily cancel out Communist China against South Korea and Taiwan, although Russia may well take all three into account as potential enemies.

⁷¹See "Comparative Warship Building Programmes," "Soviet Naval Developments", pp. 144-150; also "The Military Balance: 1975-76" (IISS London), p. 88.

⁷²See A. M. Kuzmak, "Where does the U.S. Navy go from here?", "Military Review", February 1972. Percentages exclude the Marine Corps element; the dates refer to the U.S. fiscal year.

⁷³This is the general consensus in the special issue of "Survey" on Soviet Foreign Policy (Spring 1973). See particularly Aspaturian, Dallin and Zimmerman on this score. Also Marshall Shulman, "Towards a Western Philosophy of Coexistence," "Foreign Affairs", October 1973 ("Trends in Soviet Foreign Policy," "Soviet Naval Policy", pp. 3-16).

Achievement of strategic parity and a belief that the 'dynamic correlation of forces' was causing the United States to discard its policy of "negotiating from a position of strength" in favor of negotiating as an equal, allowed these domestic concerns to become primary determinants of Soviet foreign policy.⁷⁴ The policies of détente, of seeking measures to check the strategic arms race, of increased cooperation to the capitalist world, and of a greater emphasis on consumer goods, were specifically endorsed by the 24th Party Congress, and with them the implicit need to increase the flow from abroad of trade, capital, and advanced technology and management techniques. This did not imply that Russia's defense posture was to be weakened, since there has always been a consensus that a successful national policy is founded on a strong defense capability. However, the military's share of resources would not increase,⁷⁵ and, since national security was in part based on the relative balance of capabilities, attempts would continue to negotiate reductions of force levels and geographical limitations on use.⁷⁶ If successful these would "release considerable resources for constructive purposes."⁷⁷ In June 1971, Brezhnev floated the idea of mutual restrictions on extended naval deployments, with particular reference to the Indian Ocean and the Mediterranean.⁷⁸

The dangers of nuclear war had been reduced by the SALT negotiations and by the trend toward détente with the United States. The "security of the homeland" had also been increased by moves toward legitimizing the status quo in Europe. However, two unfavorable trends had emerged. The Soviet Union had long had what Shulman calls a "limited adversary" relationship with the United States and this would of course persist within the framework of "peaceful coexistence," despite détente. However, a similar and perhaps more virulent relationship now existed with China, reaching beyond rivalry for world influence, to disputes over border territories and attempts at physical containment. China tried to create problems for Russia in both Eastern and Western Europe, while the Soviet Union sought to extend its containment round China's southern borders, continuing eastwards through Burma and Indo-China to the sea. The second unfavorable trend also involved China. With the enlargement of the EEC and the continued growth of Japan, it looked as if a multipolar world of five major power centers was emerging. It also seemed possible that Russia might find itself the odd man out of this group.

⁷⁴ See Shulman (op. cit.) on this score. I lean heavily on his judgments in this paragraph.

⁷⁵ See "The Military Balance: 1975-76" (IISS, London), p. 10, for current estimates of defense spending. In the period 1971, defense expenditure fell as a percentage of GNP but rose in money terms.

⁷⁶ The Soviet Union has continuously striven to establish buffer zones around her perimeter, comprising areas which have restrictions on military force-levels or use of one kind or another. In the naval field this is reflected in attempts to have special regimes declared for the Baltic and Black Seas, limiting their use by navies of nonlittoral states. Efforts to have the Mediterranean declared a non-nuclear zone go back to 1958, and linked with the Indian Ocean, were specifically put forward as a U.N. resolution in 1964 (U.N. Resolution) and again in 1968.

⁷⁷ L. Brezhnev, quoted in "24th Congress of the CPSU", Novosti Press, Moscow 1971, p. 34. The reference is to the effects of the SAL treaty, but it is part of a general discussion on the desirability of disarmament and of regularizing the situation in Europe.

⁷⁸ Speech by Brezhnev, reported by TASS, June 25, 1971. See B. Blechman, "Soviet Interests in Arms Control" in "Soviet Naval Developments," pp. 520-534. Apparently U.S. representatives followed up this remark, but the Soviets did not proceed with it. However, the statement is repeated in the Kulish study (note 53 above).

THE COMPETITION FOR WORLD INFLUENCE

These trends reached back several years. But it is possible that the more complex nature of this increased competition for world influence, combined with fears of future isolation and/or encirclement, may have contributed to the greater emphasis on Soviet support for Third World countries, which appears to have been endorsed at the 24th Party Congress. Despite the string of major political setbacks (Algeria, Ghana, Guinea, Indonesia, Iraq, Mali), and despite growing concern over the heavy burden which foreign aid placed on the Soviet economy, aid to potentially friendly countries had risen during the second half of the sixties, and in 1971 the allocation was more than twice the previous annual average.⁷⁹ This apparent paradox can perhaps be explained by the political necessity to compete for such influence, win or lose, and also by a readiness to blame the earlier setbacks on Khrushchev's misconceived enthusiasm for a series of "revolutionary democrats", each of whom was successively overthrown.

In late 1970 it must have appeared that 'historic trends' and more pragmatic Soviet policies were working in Russia's favor. On the capitalist side, the United States was trying to disentangle itself from Vietnam, the Nixon Doctrine quite clearly limited the extent of future U.S. involvement overseas, there appeared to be a weakening of American political purpose and "the general crisis of capitalism continued to deepen."⁸⁰ On the socialist side, progressive forces were on the advance. Allende was President of Chile; revolutionary nationalist regimes had seized power in Sudan, Somalia, and Libya during 1969, and the first two had turned to Russia for support; the national liberation movements in Portugal's African colonies were becoming more effective; and it was only a matter of time before communists took power throughout Indo-China.

Direct Soviet military support was given to client regimes on three occasions in 1970. The first was the dispatch to Egypt in March-May of Russian-manned air defense systems to prevent deep penetration raids by Israeli aircraft. The second occurred in April, when a naval visit to Somalia coincided with an unsuccessful plot to overthrow the government. And the third was the warship patrol established off Guinea following the Portuguese-supported invasion attempt in late November.⁸¹

However, "historic trends" did not forsake their normal oscillations, and within a few months the situation in the Middle East had begun to turn sour on the Russians. The United States stood firmly by Jordan in September 1970 and was not inhibited in the use of the Sixth Fleet. Qadafi of Libya turned out to be an unpredictable maverick. Ali Sabri, the pro-Russian Vice President of Egypt, was arrested by Sadat in April 1971, charged with conspiring to seize power. In July, a Communist-led coup in the Sudan succeeded just long enough for the Soviets to extend a hand of friendship to the usurper before Nimeiry's forces crushed the rebellion; the rift was

⁷⁹ See Morton Schwartz "The USSR and Leftist Regimes," *Survey*, Spring 1973, pp. 202-244.

⁸⁰ Brezhnev, *op. cit.*, p. 20

⁸¹ For the last two incidents see J. McConnell, "The Soviet Navy in the Indian Ocean," *Soviet Naval Developments*, p. 398.

widened by Soviet protests over the execution of well-known Sudanese Communists. And Soviet-Egyptian relations progressively deteriorated until on July 6, 1972 Sadat gave the Soviet Union 11 days' notice to begin withdrawing those forces which had deployed to Egypt since 1970.⁸² Meanwhile, in South America, Allende's government was running into serious trouble and he was overthrown and killed in September 1972.

THE DEPLOYMENT INTO EGYPT

The decision to deploy Soviet-manned air defense systems to Egypt in the spring of 1970 provides an insight to the development of Soviet policy at this period. A large number of Soviet military advisers and technicians had been engaged in the rebuilding of Egypt's armed forces after the defeat in 1967, Soviet naval units made use of Egyptian port facilities and maritime reconnaissance aircraft staged through Egyptian airfields. But the deployment in 1970 was of quite a different order, involving the provision of a complete air defense "environment", including 18 SA-3 missile systems and some 80 fighters, with the number of Russian troops building up to over 20,000 men, and airfields and missile sites coming under virtual Soviet control.⁸³

Where the initiative for this deployment came from, is of course significant. Egyptian sources have always claimed that it was their idea, and in his recent book Heikal describes Nasser's secret flight to Moscow in January 1970, and how, by threatening to resign in favor of a pro-American leader, Nasser pressured Brezhnev into sending Soviet air defense units to Egypt.⁸⁴ However, Uri Ra'anán has disputed this version of events, arguing that that is not the way in which the Soviet Union does business with weak client states, and that the initiative came from the Soviet side.⁸⁵ He suggests that by the summer of 1969, Soviet military leaders had concluded that the War of Attrition was going badly for Egypt, and that the Soviet Union should either publicly sever all military links with Egypt, or else move in to provide the country with comprehensive and effective air defense. He considers that opinion within the Politbureau was divided on the subject, but that by November 1969 the issue had been decided in favor of intervention and was in fact raised at a Warsaw Pact meeting.⁸⁶ Thus, when Nasser flew to Moscow in January 1970 (and Ra'anán argues that he was invited by Brezhnev), the decision had already been taken in principle.

As it happens, there is nothing in Heikal's narrative which contradicts Ra'anán's argument.⁸⁷ The two versions can be readily reconciled if we allow that the Soviet leadership considered it essential

⁸²For various accounts of these events see M. Schwartz (op. cit.), pp. 230-2; R. O. Freedman, "The Soviet Union and Sadat's Egypt," *Soviet Naval Policy*, pp. 213-218; M. Heikal (op. cit.), pp. 180-5.

⁸³Mohamed Heikal, "Road to Ramadan" (New York: Quandrangle/N.Y. Times Book Co.), pp. 83-90, 161-166.

⁸⁴Heikal, op. cit., pp. 82-90.

⁸⁵U. Ra'anán, "Soviet Decision-Making in the Middle East, 1967-73," *Orbis*, Fall 1973; also in *Soviet Naval Policy*, pp. 191-9.

⁸⁶Ra'anán suggests that it was hoped to involve Warsaw Pact (as opposed to purely Soviet) troops in this operation. This would match with the attempt in that same year to persuade Warsaw Pact forces to station troops on the Mongolian frontier with China.

⁸⁷Heikal says that Nasser "decided" to go to Moscow, but is not specific as to where the initiative came from (p. 83).

that Nasser should be the one to suggest this type of direct support, and that the request should be conceded with a show of great reluctance and in large part as a personal favor to Nasser. This would enable the Soviet Union to extract maximum concessions "in return." But perhaps more important, it would spike accusations of "military interventionism" and bolster Soviet claims that their support was of a completely different nature to imperialist military involvement. This explanation has the advantage of resolving specific contradictions in Soviet behavior which were noted by Heikal,⁸⁸ and it provides a plausible rationale for the rather improbable decisionmaking process which the Egyptians witnessed in Moscow.⁸⁹

Similar considerations can explain certain aspects of Soviet behavior at the time they withdrew their air defense units in July 1972. Heikal notes that the Russians were not surprised at the eviction order,⁹⁰ and it is possible (as Ra'anana argues) that by May 1972, the Soviets had decided that the cost/benefit balance of their military presence in Egypt was increasingly negative and they were looking for an opportunity to withdraw without appearing to be deserting their protege. This view gains support from the Soviet refusal to subscribe to a face-saving joint communique, which would have declared that the experts' work was now done. The onus for withdrawal had to be placed firmly on Egyptian shoulders, and Brezhnev is quoted as saying to Sadat, "You asked for experts. If you want them to leave, that is your decision and we will comply with it. But we . . . will not take the responsibility before history of suggesting that they are being withdrawn at our request."⁹¹ As Heikal comments (although unwittingly, and in a different context), "Brezhnev . . . was brilliant at public relations."⁹²

This whole affair may shed some light on a wider policy debate. Irrespective of where the initiative came from, it is generally agreed that the deployment represented a major departure from established policy and was taken after discussion by the full Politbureau, with extensive involvement by the military. We can also be fairly certain that the decision was a controversial one and that there would have been those who stressed the risks and costs of such a policy and were less persuaded by the potential benefits. It is therefore significant that within 2 years the Soviet Union was no longer prepared to pay the rising political and economic costs of maintaining the deployment,

⁸⁸ When the agreement was reached in Moscow, Brezhnev made a point of stressing the need for secrecy. Yet, the very first time Soviet aircraft took to the air against the Israelis, the pilots spoke openly in Russian. Similarly, the first missile systems were driven openly from the docks in broad daylight with Russians waving and shouting to the crowds from the trucks (Heikal, p. 90). This explanation also illuminates Brezhnev's flattery of Heikal as a "communicator" (p. 89).

⁸⁹ One of the least plausible aspects of Heikal's description of the Moscow discussions in January 1970 involves Brezhnev making a decision in principle within 10 minutes, and the calling of a special meeting of the Politbureau to consider and *rule on* Nasser's request (Heikal, p. 80). In view of the political, military and economic implications of the proposal, it is highly unlikely that either Brezhnev or the Politbureau would be prepared to reach *any* decision without extensive preliminary staff work; nor did the decision have to be given that same day. One must therefore assume that the principles had been agreed on some time previously, and if in fact the Politbureau did meet that day, it was to collectively ratify what was obviously an extremely controversial decision. I am not suggesting that Heikal's personal narrative is incorrect; merely that he was not fully aware of what was happening and how Egypt was being manipulated.

⁹⁰ Heikal, p. 188.

⁹¹ Ibid, p. 176.

⁹² Ibid, p. 89.

and the original decision was (in effect) reversed. This provides some indication of how closely balanced the arguments must have been and suggests an element of continuing controversy within the decision-making apparatus.

Meanwhile, it is reasonable to assume that the Politbureau discussions which underlay the decision on the Egyptian deployment provided the basis for the new policy of emphasizing the role of a Soviet military presence in distant parts of the globe, which was endorsed at the 24th Party Congress. We would therefore expect a reversal of the original decision on Egypt to have some corresponding effect on the worldwide policy. It seems likely that the period 1969-73 saw a sustained debate on the role of a Soviet military presence in support of foreign policy objectives outside the Warsaw Pact area, and its cost-effectiveness compared with other instruments available to Russia. The latter would include the supply of arms and military training, the merchant and fishing fleets, the normal processes of trade and aid, and various forms of diplomatic influence and political penetration.

THE STRATEGIC ARMS LIMITATION TREATY

The SALT process had been underway since November 1969 and in May 1971, Brezhnev and Nixon agreed to reach some conclusion within 12 months. I suspect that an important byproduct of these negotiations was to give an extended group within the Soviet leadership a clearer understanding of the U.S. policymaking process, and of U.S. intentions (past, present, and future) and likely behaviour in differing circumstances. There have always been certain inconsistencies between U.S. pronouncements on national security and U.S. weapons procurement policies, leading to serious doubts in Moscow concerning American intentions and her readiness to risk nuclear war. During most of the Kennedy administration, the Soviet leadership was genuinely concerned that the United States was trying to acquire the capability for a disarming first strike, if only to be able to negotiate "from a position of strength."

The protracted SALT negotiations are likely to have persuaded a growing number of the Soviet military-political hierarchy that the U.S. leadership had never thought seriously in terms of initiating nuclear war against Russia; and that whatever U.S. policy might be towards the use of military force to secure American interests around the world, its leaders remained seriously concerned about the dangers of nuclear escalation. In other words, there would have been a progressive, but fundamental shift in Soviet threat perceptions.

This is likely to have had two main kinds of effect. On the one hand, there would have been those who would see this as grounds for lowering tension, for reduced expenditure on defense and for the reallocation of resources to the civilian economy. And on the other, there would be those who would see new opportunities for a more assertive policy in pursuit of the Soviet Union's international goals, who would call for a greater readiness to risk direct confrontation with the United States in distant parts of the world, and rather than reduce defense spending, would seek at the very least to re-allocate resources so as to provide the means for supporting a more

assertive global policy. In the middle would be those straddling the fence, seeking to have the best of both worlds. Meanwhile, there would remain the unconvinced, and these might well make up the great majority of the military establishment, who would doubt whether the threat had in fact changed, and would continue to press priority for the direct defense of the Soviet Union and to argue the dangers of direct confrontation and of entangling overseas adventures.

THE INTERNAL DEBATE

As Shulman points out, doubts about the tendencies underlying the SALT process were not limited to the military. The major source of opposition came from the orthodox wing of the party and from the State Security apparatus, who focused on the ideological dangers of peaceful coexistence and détente, and on the economic dangers of abandoning autarky as an objective.

The debate was therefore wide ranging. It extended from the allocation of resources within the economy, to the role of military force in pursuit of international goals; from the likelihood of nuclear war and its nature, to the effects of peaceful coexistence on internal stability and ideological commitment; from the dangers of economic dependence on the West, to the roles and missions of the different armed services.

It appears however that some kind of compromise may have been reached in the Spring of 1973. At the Central Committee plenum in April, three new members were brought in to the Politbureau: Gromyko, the Minister of Foreign Affairs; Marshal Grechko, the Minister of Defense; and Andropov, the head of the Committee for State Security or secret police. Among those dropped was Shelest, who is reputed to have been a hardliner and against détente. There is also some evidence that the professional military debate was choked off in the latter part of May (see Appendix B, note 7).

THE OVERALL CONTEXT

It would appear, therefore, that the Gorshkov series was written and published at a period when a wide ranging argument was in progress, covering matters of direct concern to the Soviet Navy in terms of current operational employment and future institutional health. It was also a period which saw a new emphasis on the role of a Soviet military presence in countering "imperialist aggression," and involved the more assertive use of naval forces in distant waters. This policy may however have been modified in 1972-73.

The Soviet military establishment continued to be dominated by the ground forces and the navy still remained last of the five branches of service. However, the navy's main mission of countering the West's sea-based strategic delivery systems was receiving full support, with other branches (particularly the SRF) playing an increasingly important role. The Soviet Armed Forces had developed the capability of dealing with the strike carrier in a general war, but a counter to Polaris was still being sought, with radical new systems under development whose effectiveness had yet to be demonstrated. Meanwhile, a new class of SSBN would shortly enter service, able to strike at North American from Soviet home waters.

Within the navy, priority continued to be given to nuclear submarines, which were building at ten a year and constituted the main force of the fleet; naval aviation was second in importance. By comparison, the construction of distant water surface combatants was low, and the existing imbalance between surface and submarine forces would persist in the years ahead. Although the new surface ships had an improved general purpose capability, the navy as a whole was tailored for nuclear-missile war, with a large proportion of task-specific units.

The new emphasis on the role of a military presence as an instrument of foreign policy, placed extra demands on Soviet naval forces. Especially in time of crisis, these were already fully extended in discharging their primary mission, and it seems likely that parts of the navy were suffering from operational overstretch, particularly the distant water surface forces.

The navy's shift to forward deployment had not been matched by an increased allocation of resources to naval construction and relied on the availability of shore facilities in the forward operating areas. Although the strategic threat from the Eastern Mediterranean was a matter of national concern, the Soviet Navy had been unable to sustain a year-round presence until it gained access to Egyptian ports after the 1967 war. The deployment of Soviet air defense units in 1970 helped to ensure the security of these base facilities and consolidated the use of Egyptian airfields by Soviet naval aircraft. The operational effectiveness of the Soviet Mediterranean squadron depended heavily on the continuing availability of Egyptian airfields and port facilities. Under these circumstances the navy would have viewed with considerable concern the gathering conclusion of the leadership, that the costs of a Soviet military presence in Egypt outweighed the benefits. Besides losing access to the all-important airfields, the Soviet Navy could not count on the Egyptian ports still remaining available.

Gorshkov had spent 6 years of persuasion and pressure gaining access to those facilities and he would have been loth to let them go without a fight. This may have been the precipitating cause of the series. The second article includes a chapter "The Russians in the Mediterranean" which, despite its historical setting, speaks clearly and at length about the strategic importance and political legitimacy of the present-day Soviet naval presence in that sea.

THE SUBSTANCE OF THE GORSHKOV SERIES

Gorshkov's articles appeared between February 1972 and February 1973. In some respects, the series fits into the general category of publication put out shortly after the 24th Party Congress, which were intended to explain and publicize the policy decisions endorsed on that occasion; the booklet published under Marshal Grechko's name is one such.⁹³ However, the whole balance, tone and thrust of Gorshkov's writing, together with certain concrete evidence, has convinced the majority of analysts that the *primary* purpose of the articles was to argue a case and to persuade. Detailed justification of this conclusion is deployed in Appendix B.

⁹³ Also the book edited by Kulish. For details see notes 54 and 55 above.

The case being argued is that Russia needs a powerful navy for use both in peace and war. From the details of the argument one can infer a fairly closely-balanced high-level policy debate, which extends beyond the navy's role to the wider issues of peace and war, and the nature and style of Soviet foreign policy.

The substance of the Gorshkov series can be seen from the detailed table of contents at the end of this section (Table I). The bulk of the material is a selective historical review of the role of navies since the 17th century, and of the development of the Russian and Soviet fleets over those years. Eighty percent of the series covers the period prior to 1945, and roughly two-thirds of the historical discussion focuses on the various wars of the period, of which World War II takes about half. In his introduction, Gorshkov explains that his purpose in expressing "a few thoughts about the role and place of navies in various historical eras," is to "determine the trends and principles of the change in the role and position of navies in wars and also in their employment in peacetime as an instrument of state policy." He has argued earlier that "the capabilities for conducting combat operations on the oceanic expanses have increased immeasurably," and also that "the place and role of each of the branches in a country's armed forces can change both in peace and in war." He concludes his introduction by noting "how the ability of people to learn to appreciate the ocean and to use it for their own needs directly affects the growth of the political prestige of the country and its economic and military power." (72/2/20-23: 1-3)

The Gorshkov series are rich in information. Although the dominant tone of the articles is that of advocacy and justification, they contain a strong element of "educating the fleet," and Gorshkov also makes many points in a debate of which we are only partially aware. For the purpose of this paper I have therefore concentrated on drawing out what I see as being the major strands of his argument. As far as possible I have avoided detailed textual interpretation, referring instead to my earlier analysis, and to the work of Herrick and Weinland, who reach the same general conclusions.⁹⁴ Detailed argumentation on the navy's role is contained in Appendix C, where I address various points of disagreement raised by McConnell's analysis.

In drawing conclusions from the Gorshkov series, certain caveats are in order. In the first place, Western attention has mainly focused on the details of what Gorshkov said and we still lack a proper analysis of where the articles fit into the wider Soviet debate. There has been no systematic comparison of Gorshkov's remarks with what was being said in this period by the political and military leadership, by the other branches of the armed services, and in the various official organs and institutional publications. Second, our new understanding of the 1960-65 period should warn us how difficult it is, without benefit of extensive hindsight, to be certain of the central focus of these internal debates. And finally, Gorshkov covers a very

⁹⁴ My analysis was completed in May 1973, and an edited version was published in Admiral Gorshkov on "Navies in War and Peace." Center for Naval Analyses, Washington, CRC 257, September 1974, pp. 21-70; this also contained analyses by R. G. Weinland (pp. 1-20) and J. M. McConnell (pp. 71-116). I will refer to these versions in the notes to this part of the paper. Weinland's analysis is also published as "Analysis of Admiral Gorshkov's 'Navies in War and Peace,'" *Soviet Naval Policy*, pp. 547-572. Herrick's full analysis appears in a series of unpublished working papers. His analysis of the first six articles appeared as "The Gorshkov Interpretation of Russian Naval History," *Soviet Naval Development*, pp. 306-321.

wide field and we must beware of statements being lifted out of context to serve as evidence in unrelated areas. Gorshkov offers a reasonably coherent argument, and there is no analytical justification for using his statements out of context.

In my interpretation of Gorshkov's statements, I start with the assumption that in general, he means what he says. *Morskoi sbornik* is read widely throughout the Soviet Navy and Gorshkov indicates that his remarks are also addressed to the command echelons of the other branches of the armed forces. It therefore seems reasonable to take what he says at face value and, if there is doubt, to favor the self-evident and commonsense over the obtruse interpretation. I look for more complex explanations when Gorshkov's remarks appear to be out of context, or contradict either his own argument or established facts.

We should also be aware of certain points concerning the publications of the series. Weinland has drawn attention to a range of anomalies, including the unprecedented censorship delays which were imposed on the publication of *Morskoi sbornik* after the fifth article in the Gorshkov series. And the fact that the July (Navy Day) issue broke the series to carry an article by Gorshkov on the role of ship commanding officers. (See Appendix B.) It is also possible that the series as originally planned, consisted of the first 10 articles only. They comprise a coherent whole. There was a 1 month gap before the 11th and final article appeared. And it consisted of 2 unrelated chapters, which were not only very different from each other, but differed greatly from the previous 10 articles in terms of style, content and structure of argument.⁹⁵

AN ASSERTIVE FOREIGN POLICY BASED ON MILITARY POWER

The fifth article in the series covers the development of the Soviet Navy from the Revolution until 1928 and includes a section entitled "The Leninist Principles of Military Science." This is sandwiched between sections on the October Revolution and the Civil War, and in most respects it stands out as a massive *non sequitur*, the only justification for its location being historical chronology. (72/5/13-15: 55-56)

In this section, Gorshkov enunciates 10 principles which he draws from Lenin's works; they cover subjects ranging from the supremacy of the party, to the factors underlying victory in war.⁹⁶ I believe that each of these principles has been carefully chosen to provide the necessary underpinning to different points of Gorshkov's argument, and that some of them stand as injunctions (or implied criticisms) on their own. I consider that special weight should be given to them, and I will draw on some of them at later stages of this analysis. It also seems probable that some of the political arguments which are central to the wider debate, are addressed by Gorshkov in this section.

⁹⁵ The 10th article comprised the chapter "Navies as an instrument of the aggressive policy of the Imperialist States in peacetime." As shown in Table I, there was an asterisk break towards the end of the article (the first in the series), followed by what could be read as a summing up of the argument of the whole series. The only other asterisk break appears at the end of the 11th article, and is followed by a 520 word conclusion. These concluding paragraphs would, if anything, fit rather better at the end of the 10th article, and would still come within the average length.

⁹⁶ See McGwire (CNA) pp. 23-24.

Taking the section as a whole, Gorshkov could be interpreted as quoting Lenin in support of an assertive foreign policy based on military power. He considers that détente as a political tactic undermines fighting morale. Defense requirements must be based on the enemy's present and future capabilities, and must come before all other demands on the economy. The armed forces must be structured to fight and win a nuclear war if necessary. The more active foreign policy should use surprise and local military superiority to exploit the adversary's weaknesses and to seize and retain the initiative. Once the policy and plan of action have been decided there must be no faltering, or political backsliding from the ongoing struggle.

A similar emphasis on the role of military power appears in the introduction to the series, where Gorshkov quotes Lenin's dictum that "politics is the reason, and war is the instrument, and not the other way around. Consequently it only remains to subordinate the military point of view to the political." (72/2/20/5: 2/1/3) This is a standard quotation, which can be found for example in Sokolovskij's "Military Strategy,"⁹⁷ but Gorshkov goes on to say that in the past, the outcome of foreign policy negotiations has depended on relative military power. He returns to stress this point in the course of his historical review. (72/4/13/10, 14/4, 15/7: 28/1/4, 2/3, 29/2/2)

Meanwhile Gorshkov's emphasis on Lenin may itself echo some aspect of the wider debate. In the third edition of "Military Strategy" a whole series of references to Lenin have been omitted, along with certain references to Frunze, another authority quoted by Gorshkov.⁹⁸ It would appear that these deletions had some special significance, since they do not affect the meaning of the original text. Equally, Gorshkov's emphasis on these doctrinal authorities would suggest some kind of fundamental disagreement.

We are therefore left with the impression of Gorshkov being involved in a wide-ranging debate which extends to cover the role of military power as an instrument of foreign policy.

THE IMPORTANCE OF NAVIES IN WAR AND PEACE

The importance of navies is the dominant theme of the series, and as Herrick remarks, "it would require a fertile mind to turn up an argument that he has not already woven into the fabric . . . at one or more points."⁹⁹ Gorshkov asserts that naval power has always been an attribute of great power status and that history "shows that those states which do not have naval forces at their disposal have not been able to hold the status of a great power for very long." (72/2/23/5: 3/2/4) The great majority of Gorshkov's historical examples are shaped to show the importance of navies to the conduct and outcome of war over the centuries, the navy's role in projecting military power into distant areas in peacetime, and the penalties which a lack of naval power has inflicted on Russia in the past. (See appendix C for a summary of examples).

⁹⁷ V. D. Sokolovskij *Voennaya Strategiya*, Moscow 1968, p. 24.

⁹⁸ See Harriet Fast Scott *Military Strategy* (Third Edition: a translation analysis, and commentary and comparison with previous editions), Stanford Research Institute, January 1971, pp. 170-172, notes 1-4, 174 notes 8 and 11, 212 note 2, 309 notes 2-3, 415 note 8. The subhead "The Marxist-Leninist Concept of War in the Modern Era" (p. 213 note 5). A new paragraph was inserted in the 1968 edition which began "Speaking of Soviet military doctrine, it must be said that its political aspect was formulated by V. I. Lenin."; by omission, the implication is that Lenin did not formulate the military aspect. (p. 68)

⁹⁹ Herrick, *op. cit.* p. 306

Russia's status as a maritime power and her need for a powerful navy is of course acknowledged by the official line. For example, in 1971 we have Marshal Grechko voicing the same complaints that Gorshkov advances in his first article, to the effect that Western propaganda has always tried to classify Russia as a continental power, and to deny her need for a fleet.¹⁰⁰ In the same article Grechko recognizes that "combat operations on the oceans and the seas are acquiring a new significance. Navies can have an enormous impact on the entire course of a future war," and goes on to mention the radical qualitative changes which have taken place in the means of warfare at sea. And in "Military Force and International Relations," Kulish refers to the fact that "the increased power and mobility of the Soviet Navy radically changed the military-strategic situation on the world's ocean."¹⁰¹

However, Gorshkov's advocacy of the navy's role in war and peace goes well beyond these mainly factual assertions. Besides the sheer volume of argument which he assembles, and the tone of his conclusions, we have his emphasis on the *increasing* importance of the ocean as an arena of conflict. And there is also his claim in the introduction to the series that "the place and role of each of the branches of a country's armed forces can alter in peacetime and in war, depending on technological changes, on the enemy being confronted, on the geographical conditions, etc." (72/2/22/2: 3/1/2) Given the nature of his discussion of these determining factors, he can only be implying that the change should be in the navy's favor. And in fact, in the conclusion to the whole series he asserts that "the absolute and relative importance of naval warfare in the overall course of a war has indisputably grown." (73/2/24/8: 134/2/3).

THE NAVY'S WARTIME ROLE

Gorshkov makes very few references to the Soviet Navy's wartime role and these concern nuclear-missile war. In his introduction he asserts that the particular attributes of naval forces have "catapulted navies into the front rank of the diverse modern methods of armed conflict." (72/2/20/2: 1/2) And in his final chapter he states that "the basic mission of great power navies in a worldwide nuclear war" comprises three tasks:

1. "Participation in the attacks of the country's strategic nuclear forces."
2. "Blunting the enemy naval forces' nuclear strikes from the ocean axes."
3. "Participating in the operations conducted by ground forces in the continental theatres of military operations." (73/2/21/3: 131/2/2)

The first of these tasks involves the SSBN force. This is one of three specific (plus one possible) references to SSBN or a Soviet naval role of strategic strike. (See appendix C.)

The wording of the second task—literally "weakening" (*oslablenie*)—implies direct action against enemy naval strike forces

¹⁰⁰ A. A. Grechko "The Fleet of Our Homeland," Msb. July 1971. This is the Navy Day issue of *Morskoy sbornik*.

¹⁰¹ V. M. Kulish, op.cit. p. 317 (JPRS translation, p. 104).

or against their weapons shortly after launch. The peacetime aspect of this task is also explicitly referred to by Gorshkov (see below).

The scope of the third task is less clear and Gorshkov's description can be read in two very different ways. If we see the final chapter as drawing together the arguments he deploys in the earlier articles, then Gorshkov's words could be read as encompassing the full range of naval operations in World Wars I and II. To some extent they echo Gorshkov's conclusions concerning naval operations in World War II, the latter having a "clearly continental nature. The activities of navies were goal-oriented toward cooperating with the ground fronts, and towards supporting their needs." (72/11/33/7: 108/2/3) This judgment comes in a chapter which is primarily devoted to the analysis of Western naval operations.

However, if we apply a more restrictive interpretation to Gorshkov's wording, it implies that apart from the first two tasks, naval operations will be limited to the direct support of military operations on land, which is of course the Russian Navy's traditional role.

In any case, the fact that Gorshkov devoted 20 percent of the whole series to discussing and analysing the worldwide non-Russian naval operations in World Wars I and II is significant. In his chapter "The Basic tasks carried out by navies in the course of the Second World War" (72/11: 99-109), two thirds of the discussion is devoted to the battle of sea communications, the other two major subcategories being amphibious operations (Western style) and the destruction of enemy striking forces.

Gorshkov concludes that although the war was won in the continental theatres (primarily on the Russian front), Western naval operations made an important contribution to the outcome. I get the strong impression that the significance of this naval contribution to the war effort was one of the major points that Gorshkov sought to establish. Taking the series as a whole, I infer that Gorshkov is arguing that protracted war at sea is a possibility which must be allowed for. He envisages attacking merchant convoys and troop reinforcements, and perhaps the occupation of the Norwegian coast at the outbreak of war.¹⁰² His remark that "naval forces can better withstand the effects of nuclear weapons than ground force" (72/2/20/2: 1/2/1) suggests that he is talking of the postnuclear exchange period, but it is not clear whether he also thinks that limited war at sea is possible, without eventual escalation. His reference to Russia's unlimited resources (73/2/19/6: 129/2/4) and his extended discussion of the effects of commerce war have overtones of a long drawn-out war fought mainly at sea, with no nuclear exchange.

It seems unlikely that the restrictive interpretation of the third task is correct, since it runs counter to the whole trend of the argument in the previous articles. And Gorshkov does perhaps suggest a broader compass when he adds that "in these circumstances, navies will perform a large number of complex and major missions."

To sum up Gorshkov's treatment of the navys wartime role, we can say that he refers to the tasks of delivering strategic strikes and blunting the enemy's seabased strikes, but gives them no special prominence. His remarks on this score are factual and he makes no attempt to justify these two tasks. What he does try to justify

¹⁰²See MccGwire (CNA) pp. 49-51.

by historical analogy (and at considerable length), is the possibility of protracted war at sea, certainly in the period following a nuclear exchange and perhaps also in circumstances of limited war. This is one of the major strands of his overall argument.

THE WARTIME/PEACETIME ROLE

A detailed analysis of Gorshkov's references to the two elements of this role can be found in Appendix C, and he does not give the impression that he is arguing about either of them. Gorshkov makes a single reference to the SSBN's growing contribution to nuclear deterrence, where he mentions that their greater survivability means that they are more effective in this role than land-based systems. The tone is factual and he would not seem to be justifying the navy's share of this task, or advocating a larger one.

The other element of this role, the task of countering Western sea-based strategic delivery systems, is referred to as the navy's *main* task. The navy is said to be successfully fulfilling this task—"the defense of the country from attacks by aggressors from the ocean axes"—along with other branches of the armed forces, special emphasis being given to the strategic rocket forces.

THE NAVY'S PEACETIME ROLE

Both in the historical chapters and in the contemporary ones, Gorshkov places considerable emphasis on the utility of navies as instruments of national policies in peacetime. Referring to contemporary circumstances, he stresses the role of naval visits as a means of "strengthening the international influence of the Soviet Union." (72/12/21/9: 119/2/5) Referring to the task of countering imperialist aggression in distant sea areas, he describes the Soviet Navy as "a powerful means of defense on the oceanic axes, a formidable force for the deterrence of aggression, which is constantly ready to deliver retributory blows and disrupt the imperialists plans." (72/12/21/2: 119/1/3 and appendix C)

In many respects, Gorshkov's discussion of the peacetime role of navies fits in with the increased emphasis on the role of a Soviet military presence, which appears to have been endorsed at the 24th Party Congress. This is discussed by Kulish in his book,¹⁰³ who gives due attention to the navy's role in this regard and specifically mentions the Soviet squadron in the Mediterranean. There is however a distinct difference in balance between the two treatments. While not underplaying the naval contribution, Kulish discusses the question of military presence in general terms, referring to the increased importance being attached to strategic mobility, and possible future requirements for "mobile and well-trained and well-equipped armed forces." In contrast, Gorshkov places all his emphasis on the navy's *unique* qualifications for this particular role, presenting all the arguments in favor of navies which we know so well in the West. He is also at pains to point out the inherent limitations of other forms of military force in this role. (72/12/16/3-4: 115/1/3-4)

Kulish emphasises the reactive nature of a Soviet military presence and claims that the Soviet Union is prepared to withdraw such forces

¹⁰³Kulish op. cit. pp. 133-139 (JPRS translation pp. 101-105).

if the imperialist powers would do likewise; he quotes in support Brezhnev's 1971 proposals for mutual restrictions on naval operations. Although Gorshkov does stress that the goals underlying the Soviet Navy's peacetime role are fundamentally different to those of the Western imperialist navies, there is no suggestion that he favors mutual withdrawals. Taking the series as a whole, Gorshkov's emphasis is on the positive benefits which accrue from the use of navies in peacetime to protect and promote state interests. Gorshkov's style is also more assertive than Kulish's. The reference to deterring imperialist aggression quoted at the beginning of this section implies active interposition (at the very least), and other comments by Gorshkov might be read as implying direct intervention in local wars (73/2/21/4, 9-10; 131/1/4, 2/2-3), although he never quite says so.

And finally, if we compare the Gorshkov series with Grechko's "On Guard for Peace and the Building of Communism," it would appear that their interests lie at opposite poles. Grechko concentrates the majority of his discussion on the requirements for the defense of the Soviet Union and on relations with the Warsaw Pact countries. His references to a wider international role are marginal and he does not discuss the role of a military presence in peacetime.

We can sum up Gorshkov's treatment of the peacetime role by saying that while arguing within the approved framework of and increased emphasis on a Soviet military presence, he goes well beyond other statements in his advocacy of this role in general and of the navy's unique qualifications to fulfill it, and in his emphasis on the limitations suffered by other branches of the armed forces. The assertive use of navies in peacetime for the protection and promotion of state interests is one of the main strands of Gorshkov's argument.

THE SIZE AND SHAPE OF THE SOVIET NAVY

In his chapter analyzing the main types of naval operation in World War II, Gorshkov points out that the task-specific fleets were severely handicapped in comparison to those which had a broad and more balanced capability, capable of carrying out large-scale and strategic-type missions. As unfavorable examples he cites the German Navy, which was virtually limited to attacking sea communications, and the Japanese Navy, which had almost no ASW capability. By contrast the British and American Navies were able to carry out "broad strategic missions." (72/11/32/5: 105/2/7)

Gorshkov returns to this theme in his final chapter, in a passage discussing the capabilities of the Soviet Navy. He mentions that "through the will of the Central Committee of the CPSU," the Soviet Union had embarked on the construction of an oceangoing navy, based on various types of nuclear submarine. Then, starting a *new paragraph* and using the present tense, he says "However, a modern navy, whose mission is to conduct combat operations against a strong enemy cannot only be an underseas navy." He supports this assertion by referring to the heavy penalty paid by Germany in both World Wars for failing to provide aircraft and surface ship support to submarine operations (73/2/20/7-8: 130/2/4-5). Gorshkov had stressed this same point in his earlier analysis of the unrestricted submarine campaign in World War I (72/5/17/6: 45/1/3) and the battle for sea communications in World War II. (72/11/28/6: 103/1/1)

He goes on in the next paragraph to say "Therefore, we, while giving priority to the development of the submarine force, consider that we have a need not only for submarines, but also for various types of surface ship. The latter, besides providing combat stability to the submarines, are intended to discharge a wide range of tasks, both in peacetime and in war." (73/2/21/1: 131/1/1)

These two paragraphs read like advocacy, or at the very least, justification. It is noteworthy that Gorshkov does *not* link "The will of the Central Committee" with the requirement for surface ships, but only with the *past* decision to build an oceangoing fleet based on submarines. The impression of advocacy is reinforced by the rest of the second paragraph, when Gorshkov talks of the need for a diverse range of surface ships and points out that "attempts which have been made in a number of countries to build universal (*universal'nyj*) ships to carry out all (or many) tasks, have not been successful".

If we analyze the structure of the Soviet Navy, we see that by comparison with western fleets, it has a relatively small range of surface ships. In contrast to the proliferation of specialized types which have appeared in western navies since the war, the number of different types of Soviet distant-water unit has remained roughly constant since before the war, except that since 1970 they have ceased building the escort-sized unit. Their new surface units are jam-packed with weapon and sensor systems, the penalty for which is a limited capability for sustained combat operations.¹⁰⁴ Meanwhile, nuclear submarines are building at 10 a year, while distant-water surface units are being delivered at half that rate, or less. When U.S. admirals comment that the Soviet Navy has a "sea denial mission," they are in fact saying that it does *not* have the capability for "broad strategic missions", which Gorshkov advocates. It would appear that when Gorshkov says "We . . . consider that we have a need . . . for various types of surface ship" he is expressing opinion and not policy. He clearly accepts that advances in weapon, sensor and propulsion systems "are objectively fostering the advance of submarines an aviation into the forefront of naval forces" (73/2/20/3: 130/1/8), but considers that the essential contribution of surface ships is not being given sufficient attention. When discussing the question of "balanced forces" in late 1971/early 1972 with Western naval officers in Moscow, Gorshkov commented that while it was easy to defend the requirement for submarines, it was much harder to justify the need for surface ships.

Later in the same chapter, Gorshkov reviews the characteristics which naval forces require for operations in the "nuclear era" when opposing forces remain in company with each other in peacetime, with the need for continuous, instant readiness to fire "the first salvo." (73/2/22/2: 131/3/5) He stresses three main requirements: (1) long range at high speed for surface ships; (2) large radius of action for aircraft; and (3) nuclear propulsion for submarines. (73/2/22/5: 132/2/2) He brings out various other requirements generated by the need for extended deployments: (1) surface combatant design must provide for good seakeeping and long endurance; (2) improved ser-

¹⁰⁴J. W. Kehoe "Warship Design: Ours and Theirs," U. S. Naval Institute Proceedings, August 1975, p. 64.

vice-life and reliability of machinery (this point is stressed); (3) improved habitability; and (4) effective afloat support. (73/2/22/6-9: 132-133) He also makes the point that the greater the endurance built into ships, the smaller the numbers required.

These are the minimum requirements for sustained forward deployment. It is a list of what Gorshkov needs rather than what he's got. Nor is it clear whether all these requirements have been accepted as inputs to future procurement. I get the strong impression that Gorshkov is not satisfied with the existing and projected structure of the Soviet Navy. While I am unwilling to accept Herrick's conclusion that Gorshkov is advocating the construction of a navy which could challenge the West for naval supremacy,¹⁰⁵ the emphasis throughout Gorshkov's argument is on the importance of adequate naval strength, of contributions by all arms of service, and of properly balanced forces. As a fleet with worldwide pretensions, the Soviet Navy is *not* a balanced force, either in the generally understood meaning of the term, or the sense in which Gorshkov discusses the requirement in these articles.¹⁰⁶ As I read Gorshkov's argument, his main concern is for more surface ships, with a much improved capability for sustained deployment, and he needs additional types of ship. He needs effective mobile afloat support. And he wants to develop a fleet which has a better balance and the capability to discharge a wider range of tasks.¹⁰⁷

So much for what Gorshkov actually says. But what he left out may also be important. His previous major statement on naval matters was an article in February 1967, which discussed the postwar development of naval art. In that he pointed to the Soviet decision to concentrate on submarine-launched missiles as the main striking arm of the fleet; and he reaffirmed the correctness of the decision in the light of subsequent experience, which had confirmed the vulnerability of carriers. (67/2/19/2-3) In the present series Gorshkov makes no reference to the carriers' vulnerability.

This may not be significant. In the present series he does not discuss detailed tasks or contemporary comparative capabilities, nor does he discuss the development of naval art in the postwar period, so perhaps no comment was to be expected. Gorshkov does however refer to the fact that Soviet ships are "at sea for long periods close to imperialist fleets, and have the opportunities to really evaluate their strong and weak points . . ." (73/2/23/2: 113/1/6) and here he is talking mainly of carrier forces.

What, if anything, does Gorshkov have to say about carriers? In his analysis of naval operations in World War II he points out that

¹⁰⁵R. W. Herrick "The Gorshkov Papers Revisted". Unpublished paper March 1974, p. 2 and Appendix A. Herrick notes that the Gorshkov series include almost every conceivable justification for building a better balanced and a larger navy. He examines 22 historical examples used by Gorshkov in his analysis, and concludes that in 15 of them the need for more ships is clearly implied. The examples are culled from Chapters X-XIII, i.e. only four articles, which are limited to the period since 1939. More examples could be found from the earlier periods.

¹⁰⁶The Soviets often claim that they already have a balanced fleet, but this relies on a tautological definition. As explained by Gorshkov in 1967, a well-balanced fleet is one that by reason of its composition and armament is capable of discharging the tasks assigned to it, whether in nuclear-missile war, or non-nuclear-missile war, or in protection of state interests in time of peace. (Msb. 67/2/20/footnote). There is no indication of what the assigned tasks are. It is significant that Gorshkov focused his criticism of the German and Japanese Navies on the restrictive nature of their mission, rather than on the composition of their fleets.

¹⁰⁷See McGwire (CNA), p. 45.

by the end of the war "superiority among surface forces had completely shifted to aircraft carriers." (72/11/32/6: 108/1/2) And toward the end of that chapter, when he mentions that "each of the great powers strove to insure decisive superiority for their navies" (72/11/34/4: 109/2/1), he does not take the opportunity to denigrate the U.S. Navy's emphasis on attack carriers. Perhaps of greater interest is his reference to carriers in the chapter discussing the role of navies in peacetime. He points out that whereas in the past the naval threat was limited to the range of guns, "warships today carry nuclear missiles and aircraft, whose range can cover the entire territory of foreign states." (72/12/16/4: 115/1/4) This comes in a paragraph extolling navies' unique capability to project power ashore in distant waters.

None of this is very conclusive. Possibly more significant is one of the "Leninist Principles of Soviet Military Science" which Gorshkov chooses to highlight in chapter IX, quoting Lenin's own words.

(Lenin) sharply criticized a scornful attitude toward evaluating the forces and capabilities of the enemy, and always demanded a study of the enemy and his strong and weak points. "Everyone agrees that the conduct of an army which does not train itself to master all forms of weaponry, and all means and devices of combat which an adversary has or could have, is foolish or even criminal." On a theoretical plane, this principle, which is of real import even today, determined the proper extent of our borrowing in military science, which takes the form of our using individual elements and achievements of bourgeois military art. (72/6/12/7: 55/2/1)

The aircraft carrier is the only type of weapon system which the U.S. Navy possesses and the Soviet Navy lacks. If we allow that Gorshkov is in fact referring to carriers, then he is using Lenin's principles to say three things. (1) Don't underrate the capabilities of U.S. attack carriers. (2) Since the United States has attack carriers, Lenin's dictum requires the Soviet Union to have them as well. (3) Do not be deterred by the fact that the use of carriers derives from Western military art and has so far been rejected by Soviet military art; Lenin's dictum provides justification for appropriating successful elements of bourgeois military art. It also happens to be one which is very rarely quoted.

If we are right in concluding that Gorshkov is arguing for a better balanced fleet in order to enable a more assertive use of naval power in peacetime (among other things), then it would be logical for him to advocate the acquisition of proper aircraft carriers as opposed to (or as well as), antisubmarine cruisers which have a V/STOL capability. Carriers are the general-purpose warship *par excellence* and have an unrivaled capability for operating in a hostile maritime environment and projecting military force against targets ashore.

OPERATIONAL CONCEPTS

In his review of the interwar years, Gorshkov explicitly identifies two opposing schools of naval thought. A misguided, defensively oriented, narrowly defined strategy, which emphasized the defensive use of submarines. And a correctly perceived, offensively oriented outward-looking strategy—which was not however adopted.

(72/8/21/3: 71/1/6) In drawing conclusions from World War II, Gorshkov stresses the penalties of a narrowly defined mission and points out how Germany's dependence on submarines forced her to adopt a defensive maritime strategy, and at the same time he brings out the advantages of a balanced fleet. (72/11/32/5: 105/2/7) Other less explicit references reinforce the impression that Gorshkov is trying to establish that there is a correct, offensively oriented strategy, which relies on a properly balanced fleet. And a misguided, defensively oriented strategy which places primary reliance on submarines.

In the course of his discussion of these two opposing schools of thought, Gorshkov refers to a theory of "command of the sea," which was held by the offensive school (which he supported), but stresses that the theory was somewhat different to the one held in the West. The theory, propounded by Belli, was one of "limited command," which relied on achieving local superiority in the main sector by pinning down enemy forces in secondary sectors in one way or another.¹⁰⁸ He concludes, rather ambiguously "It was precisely this interpretation of command of the sea which underlay the employment of naval forces in combat operations at sea." (72/8/21/3: 71/1/1)

This passage, referring both to the "command of the sea" theory and to the existence of offensive and defensive schools is interesting for two reasons. First, Gorshkov covered this same period in his 1967 article and made no reference to an offensive school of thought, to a "command of the sea theory" or to Belli's definition of limited command. Discussion concentrates on the defensive viewpoint stemming from the "small war" theories. And second, in 1967 he clearly states that the defensive view held sway through into the 1950's, but in 1972 he implies obliquely that the offensive school gained ascendancy by the end of the 1930's. These contradictions assume added significance when we link them with Gorshkov's 1967 reference to the vulnerability of aircraft carriers and the correctness of the Soviet decision to rely on missile-armed air and submarine forces; (67/2/19/2-3) and with the absence of any such remarks in the present series. The carriers fit well into the "correct" offensively-oriented strategy, which relies on a properly balanced fleet; and the air and submarine forces fit equally well into the "misguided" defensively-oriented strategy, which places priority on submarines.

There is a further point to be made about "command of the sea." Belli's concept of "limited command" is well suited to a fleet which does not have overall maritime superiority. Gorshkov is at pains to point out that this theory differs from the Mahanist concept of "extensive command", achieved through battle or blockade. This is still reviled in Soviet doctrine and it is possible that Gorshkov has been accused of having Mahanist aspirations.

COMMAND AND CONTROL

In his analysis of the battle for sea communications in World War II, Gorshkov devotes one paragraph to aviation, half of which concentrates on the question of subordination. He points out that the "aviation units which were included within fleet inventories operated significantly more effectively than those temporarily attached", and

¹⁰⁸See "Command of the Sea in Soviet Naval Strategy," Soviet Naval Policy, pp. 623-636.

cites the German air force as a cautionary example. (72/11/27/3: 101/2/5) He returns to this example in the final chapter, when he refers to the Germans' failure to support submarine operations with aircraft and surface ships (73/2/20/8: 130/2/5). It is noticeable that apart from linking aviation with surface ships as a necessary adjunct to submarines, he does not discuss the requirement for aircraft, as he does for surface ships. He is however concerned to insure that all air support is subordinated to naval command.

Gorshkov's more serious concern is with "authority to engage." As he points out in his discussion of present-day operations, "delay in the employment of weapons in a naval battle or operation will inevitably be fraught with the most serious consequences, regardless of where the fleet is located, at sea or in port" (73/3/22/3: 132/1/1). This is a complex and highly sensitive problem, involving such issues as rules or engagement and the location of authority to use nuclear weapons.

THE NEED FOR NAVAL POLICY

As one of the eight points in his brief conclusions to the whole series, Gorshkov stresses the necessity of having a national policy which takes full account of the country's need for seapower. Given an adequate economic capacity, it is this policy which then becomes the major factor, determining the type of fleet which is built and promoting the mobilization of the country's resources to achieve the designated objective. Without such a policy, it is not possible for a country to develop seapower.¹⁰⁹

The implication of this conclusion is that Gorshkov considers that Russia lacks such a coherent policy. This is supported by his critical remarks in the historical chapters about those who fail to understand the significance of seapower,¹¹⁰ and his apparent dissatisfaction with the present structure of the Soviet Navy. I understand him to be saying that naval forces are not some all-purpose commodity which one buys by the ton, but that their type and quality stem directly from a country's perception of its particular requirements for seapower and from the naval policy it decides to adopt. The Soviet leadership must therefore make a conscious decision on the future role of seapower in Soviet foreign policy. If naval forces are to become an important instrument of policy, then the navy must be tailored for the task. The peacetime exploitation of naval power cannot rely on the byproducts of a policy which is solely geared to nuclear-missile war.

LIMITATION ON NAVAL ARMS AND OPERATIONS

Gorshkov makes several references to the limitation of naval armaments. However, many of these can be seen as contributions to the central argument concerning the importance of navies and their political role in peacetime. He points out that it is precisely because they

¹⁰⁹ The exact wording of this conclusion is opaque. "Given an adequate economic capacity, it is the policy, which takes into account the country's need for seapower, which then becomes the important factor, determining the type of fleet which is built, promoting the mobilization of the country's capabilities to achieve the designated objectives, and it is an indispensable condition for the development of seapower." (73/2/24/: 134/2/2)

¹¹⁰ 72/3/20/2-21/1, 4/9/1, 22/9: 11/1/2-12/1/6, 25/1/1, 36/1/2.

fully understood this, that the victors of every major war in the era of imperialism sought to impose peace conditions which would insure their continued naval superiority (72/5/22/7: 49/1/1). He points to the naval provisions of the Treaty of Versailles, which stripped Germany of its fleet and placed severe restrictions on future naval construction; he had earlier mentioned the banning of a Russian fleet in the Black Sea after the Crimean War. He returns to this question in chapter XIII, which concentrates on the role of navies as an instrument of imperialism in peacetime. In an extended discussion he refers to the various peace conferences between 1856 and 1945 and how in each case the victors divided up the enemy's fleet and imposed restrictions on the vanquished's future naval strength, thus "confirming the special significance of navies to states as an instrument of policy in peacetime" (72/12/17/6: 116/1/4).

Of greater interest is Gorshkov's treatment of the interwar naval conferences which he describes as "the war of the diplomats for supremacy at sea" (72/8/14/3: 65/2/2). In an earlier chapter he pointed out how the effects of the First World War had forced Britain to abandon her "two-power standard" (72/5/23/2: 49/1/3), and he goes on to say that as the result of prolonged struggle at these conferences between 1922 and 1936, "the United States achieved international recognition of the 'parity' of its naval forces with the British fleet, which meant that the United States and England emerged with equal rights in this area." Gorshkov returns to this question in chapter XIII, but he clearly separates his discussion of the naval conferences, which represented "repeated efforts to limit and regulate the construction of warships" (72/12/18/4: 117/2/4), from his discussion of Britain's replacement by the United States as "Mistress of the Seas" (72/12/18/5-7: 117/2/1-3).

In the former context he comments that it is interesting that until recently, arms limitations only applied to naval forces, and that even today, when arms control had become a reality, it only applied to strategic weapons. In the latter context, although Gorshkov comments that "the Americans succeeded without a war in achieving what Germany did not achieve in two world wars", he does point out that it was the wars which brought about the change. However, he attributes the decline of British seapower to "the law of nonuniformity of the development of capitalist countries" and to "the revolutionary and national freedom movements embracing the whole world".

Gorshkov is therefore talking about three different things: the imposition of naval arms limitations at the end of a war, by victor on vanquished; peacetime efforts to limit naval arms racing, which will include attempts to freeze/change existing relative strengths; and the waxing and waning of national naval power. He claims that all three demonstrate the special significance of navies as instruments of state policy in peacetime.

Two other elements must be introduced. First, Gorshkov makes no reference to Brezhnev's 1971 proposal that there should be mutual restrictions on distant naval operations, not to earlier proposals that the Mediterranean and Indian Ocean should be designated as non-nuclear zones; he does however speak favorably of the seabed arms control agreement. And secondly, publication of the Gorshkov series overlapped the SALT negotiations. In May 1971, agreement was

reached to complete negotiations within 12 months and there were fairly continuous discussions between November and the signing of the agreement at the end of May 1972. At this time, an agreement was also concluded, regulating the navigational behavior of Soviet and U.S. naval units when in company.

It is difficult to know what to make of all this. I see the omission of any reference to Brezhnev's proposal as significant, and think it may have some connection with the special emphasis Gorshkov gives to the Mediterranean in this series. For the rest, I am inclined to take much of what Gorshkov says at face value and to accept that many of his examples are intended, as he says, to emphasize the importance of navies. His discussion of Britain's replacement by the United States contributes to the same aim, since it shows the source of America's worldwide power; but it also serves a second purpose, since the two reasons he gives for Britain's decline can be seen as favoring Russia in her struggle with the United States. She is on the same side as the "revolutionary and national freedom movements" and meanwhile, "the general crisis of capitalism continues to deepen." This provides an argument against those who say that U.S. naval preponderance is too great, and Gorshkov, at least, has no doubts about the military-economic potential of the Soviet Union (73/2/19/6: 129/2/4).

There are other opinions. Shulsky considers that Gorshkov was worried that some Soviet leaders might be willing to accept permanent naval inferiority in return for concessions in other areas, such as ground forces in Europe.¹¹¹ Weinland considers that the SALT negotiations and the prospect of limitations on SSBN, had considerable influence on both the content and the anomalies in publishing the articles. While I find Shulsky's argument inherently plausible, I am less convinced by Weinland's. In the run-up to SALT, the building rate of SSBN actually increased, presumably in order to achieve the highest possible "stand-still" level.¹¹² Meanwhile, Gorshkov devotes very little discussion to the navy's strategic strike role, either directly or by analogy (see appendix C). His emphasis throughout is on the "traditional" role of navies and he focuses primarily on the requirement for balanced fleets and more surface ships. In this context, the concentration of resources on SSBN construction would militate against increased surface warship production and one might expect him to welcome a halt to the arms race in this area.

¹¹¹A. N. Shulsky "Gorshkov on Naval Arms Limitations: *Kto Kogo?*", Center for Naval Analysis, Washington, working paper 2005-74-10, Jan. 24, 1975. While I find Shulsky's line of argument persuasive and his conclusions inherently plausible, I am less convinced by the link he adduces between Gorshkov's discussion of naval arms conferences and the signing of SALT. He claims that the discussion is obviously out of place since the August article is headed "The Building of the (Soviet) Navy, 1928-41". It is however difficult to see where else Gorshkov could have fitted the discussion in. The May article dealt with the First World War and the June article covered the period from the October Revolution to 1928. The latter contained five very disparate sections, the article was full length, and less than 1,000 words were devoted to "The Restoration of the Navy 1921-28," which is a rather dull period. Meanwhile, the naval arms conferences spanned 1922-36 and were very much part of the international environment within which Soviet naval requirements were formulated in the 1930's. It would therefore seem perfectly logical to locate this general discussion about the naval arms race (which really only gathered speed in the thirties) at the beginning of this particular article. However, as Weinland suggests, the presence of the discussion in this article could provide a reason why the series was interrupted in July to publish a special Navy Day article by Gorshkov; other explanations are also available.

¹¹²See "Current Soviet Warship Construction and Naval Weapons Development," Soviet Naval Policy, p. 427. This increase was achieved at the expense of the Charlie SSBN.

The most persuasive overall explanation of Gorshkov's argument is provided by Franklyn Griffiths.¹¹³ He points out (as does Shulsky) that although at first glance Gorshkov appears to be opposed to arms control as such, he does in fact have several favorable things to say about it. Griffiths concludes that Gorshkov sees arms control as a useful tactic which can: (1) inhibit the naval development of a more powerful adversary; (2) permit a redirection of development and building program to reduce "waste"; (3) seal off areas of competition, such as the seabed; and (4) inhibit the growth of other branches of the armed forces. Griffiths goes on to suggest that Gorshkov's general argument runs as follows. Naval claims for additional resources for surface warship construction are being resisted. Russia cannot obtain the necessary naval capability without altering the balance between existing programs and/or achieving cutbacks in the programs of the other armed services. The United States is now basically deterred and SALT can hold offensive weapons frozen at their present level; funds can thereby be released from within the naval budget, from the SRF and the Air Force, and (by accepting MBFR) from the Ground Forces in Europe. Arms control will not stop the arms race but it will allow the navy to obtain the appropriations needed for surface construction.

THE MEDITERRANEAN

Gorshkov devotes a 2,500-word chapter to the Mediterranean, which is the only area to receive this treatment (72/3/27-32: 17-21). It had already featured in the previous chapter "Russia's Difficult Road to the Sea," when he mentions that one of the main goals in 1877-78 was to gain "free access to the Mediterranean Sea" (72/3/21/6: 13/1/1/). He returns to the subject in his chapter on "The Russian Navy During the Industrial Revolution and the Transition from Sail to Steam," which concentrates exclusively on the Crimean and Eighth Russo/Turkish Wars (72/4/14-15: 27-29). He points out that in the past Russia has always deployed naval forces into the Mediterranean when she has been threatened from the southwest, and that the threat from this direction has never been higher than it is today. Furthermore, Russia has a natural right to be in the Mediterranean, by virtue of her geographical location and her traditional usage of the sea which dates back to the 6th century (72/3/31/7-8: 20/2/2-3). Gorshkov is quite explicit about the nature of the threat, stating that the 6th Fleet "has as its basic mission a surprise attack against the Soviet Union and the countries of the Soviet community" and he goes on to quote the U.S. Navy as openly claiming that their aircraft carriers and submarines are "in a constant state of readiness to deliver nuclear strikes" targeted on Russia.

He stresses that the Soviet squadron is not there in the Mediterranean for expansionist reasons, but "to nip aggression in the very bud," and he goes on to defend the navy against Western charges of gunboat diplomacy (72/3/32/4: 20/2/4/-7). Shulsky makes the point that Gorshkov does not mention the protection of "state interests" as being part of the navy's mission in the Mediterranean, but chooses to quote Brezhnev's reference to a "policy of active defense of peace and the strengthening of international security" (72/3/32/7: 21/2/3).¹¹⁴

¹¹³ F. Griffiths "The Tactical Uses of Naval Arms Control", *Soviet Naval Policy*, pp. 643-5.

¹¹⁴ Shulsky, *Op.cit.*, p. 15

Gorshkov returns to the Mediterranean again in the article-length chapter "Navies as an Instrument of the Aggressive Policy of the Imperialist States in Peacetime", when he mentions the role of the 6th Fleet in bringing pressure to bear on Cyprus, Italy, Greece and the Arab States (72/12/19/3: 117/2/3), and refers to its nuclear strike (and political blackmail) role against Russia (72/12/20/3: 118/2/3). The Mediterranean also features in the discussion of the continuing encroachment of U.S. naval power (notwithstanding the SALT agreement), which appears in the final chapter. Gorshkov comments "We cannot be indifferent" to the new base for the 6th Fleet in Greece, and for nuclear submarines in Maddelena Island (73/2/20/5: 130/2/2). However, in both chapters these references are matched by examples from other sea areas.

If we take the Mediterranean and the Black Sea together, between them they comprise 10 percent of the whole series; this figure does *not* include any references to these areas in the chapters discussing the two world wars and the Soviet Navy in the interwar years. Gorshkov has of course a special link with the Black Sea Fleet, having served with that command continuously from 1941 to 1955, when he relinquished his appointment as commander-in-chief, to go to Moscow as acting commander-in-chief of the Soviet Navy. Kasatanov, who was First Deputy commander-in-chief of the navy 1964-74, took over from Gorshkov as commander-in-chief Black Sea Fleet in 1955, and remained there until he went to the Northern Fleet at the start of the shift to forward deployment in 1962.

It seems clear that Gorshkov attaches a special significance to the Black Sea and the Mediterranean, as well he might. The Black Sea provides direct access to Russia's industrial heartland, bypassing the natural barriers of rivers and space which wore down the armies of Napoleon and Hitler. Gorshkov points out that the lack of Russian naval power allowed the intervention of British and French forces in the Crimean War and again in support of the forces opposing the revolution during the civil war. He also draws the historical lesson that while the Russian Black Sea Fleet could achieve naval supremacy over the other Black Sea powers, it lost this as soon as external maritime powers intervened. The answer to this problem lies in gaining control of the exits, an objective sought by the Russians for the last 150 years; this underlay the basing of submarines on Valona from 1958 until 1961, when Albania broke with the Soviet Union.¹¹⁵ Meanwhile, a new strategic threat had emerged of direct attacks on Russia from the eastern Mediterranean, which lies as close to Moscow as does the Barents Sea, but is of course much closer to the industrial heartland.

The political leadership's appreciation of this threat is evidenced by the past decision to embark on maintaining a squadron in the Mediterranean. What they may not have realized was the extent to which the operational effectiveness of the deployment would be de-

¹¹⁵ Herrick quotes a remark by Kulish to the effect that the Soviet Union would take the Turkish Straits in a war by the army and navy attacking from both ends simultaneously. Kulish, who was head of the international relations department of IMEMO, made this remark in a conversation with R. B. Foster, who is Director of Strategic Studies at Stanford Research Institute. The navy's role would also be to prevent the arrival of Western reinforcements by sea.

pendent on access to port facilities and airfields in the area, with all the overtones of expansionism and imperialist aggression. In his discussion of the vital importance of the Mediterranean to the security of the Russian homeland, Gorshkov seems to be making two separate points. On the one hand, he is insisting on the navy's role in defending against this particular threat; and on the other, he is covering himself against the charge that the political costs of the deployment are to high.

Gorshkov's silence about Brezhnev's suggestion of mutual restrictions on naval operations is deafening. The Mediterranean would be a prime candidate for such restrictions, which could be seen as working to Russia's disadvantage. U.S. naval strike forces could reenter the Mediterranean at short notice with relative ease, whereas the Black Sea exits are a different matter.¹¹⁶ Meanwhile, the Soviet Navy would have lost its position on the far side of the exits, which is so important to insuring their seizure in war. For Russia, the Mediterranean is the antechamber to the Black Sea, with the Turkish Straits as the intervening door; as a Black Sea power the Soviet Union is also a Mediterranean power (72/2/32/6: 21/2/2).

OCEAN RESOURCES AND THE LAW OF THE SEA

The first half of the last article comprises a chapter entitled "Some Problems in Mastering the World Ocean" (73/2/13-18: 123-128). Doubts have already been expressed as to whether the last article was planned as part of the original series. But in any case, the style and content of this particular chapter make it fairly certain that it was written by a different author than the rest of the series.

The article points to the growing importance of the world ocean as a resource and hence as an area of conflict. It also sets out the contemporary official position concerning the state of maritime law and Russia's approach to the forthcoming Conference on the Law of the Sea.¹¹⁷ In most respects the Soviet position was similar to that of the traditional maritime powers with an emphasis on freedom of the seas and the limitation of national jurisdiction to 12 miles from shore. The article's discussion of the position held by the less developed countries (the group of 77) is forceful, self-righteous and undiplomatic.

The question then arises as to why this chapter was included. It doesn't really fit in with the rest of the series, it is not detailed enough to provide guidance for officers in warships visiting foreign ports, and its tone could offend countries in the Third World. Part of the chapter can perhaps be explained as "threat inflation," providing yet another reason for a powerful and well-balanced fleet with a high proportion of surface ships, but if that were its major purpose it is poorly done.

The more likely explanation seems to be that the navy's interests were closely involved in narrow territorial waters and free transit through straits, and that a softening of the Soviet position on these issues was under discussion, in order to make it more acceptable

¹¹⁶ See B. Blechman "Soviet Interests in Naval Arms Control: prospects for disengagement in the Mediterranean", *Soviet Naval Developments*, pp. 531-3.

¹¹⁷ See R. L. Friedheim and M. E. Jehn "The Soviet Position at the Third U.N. Law of the Sea Conference," *Soviet Naval Policy*, pp. 351-6.

to the less developed countries. By 1972 there was growing evidence that the assertive behavior of Soviet fishing fleets was damaging Soviet relations with an increasing number of countries, particularly in the Third World. In the spring of 1973 the Soviet Union did in fact modify its root and branch opposition to the 200-mile Economic Zone concept and advanced certain compromise proposals concerning fishing rights in these areas; I also understand that in private discussions Soviet representatives have indicated that the insistence on free transit only applies to certain straits.¹¹⁸

The three groups which would be most severely affected by such a shift in Soviet position would be the navy, the fishing industry and the ocean science community. The fishing industry in particular, with its vast capital investment in distant water fleets would welcome support from the navy, with whom there is only limited competition for shipbuilding resources.

THE TWO SIDES OF THE ARGUMENT ABOUT SEA POWER

Gorshkov's advocacy of a powerful Soviet Navy was published in the course of a wide-ranging debate about fundamental issues of foreign and domestic policy, and about the dangers of war and the future roles of the armed services. Seemingly inconsequential parts of the series make good sense if we allow that in addition to his main argument, he is making a substantial number of debating points which he feels will help his cause.¹¹⁹ These fall into four main categories: (1) he seeks to *reassure* those who have doubts about his argument, but are still uncommitted; (2) he hopes to *rally* support by emphasizing doctrinal respectability; (3) he is concerned to *rebut* earlier attacks on the case he is presenting; and (4) he attacks by analogy certain key assumptions held by his opponents.

These various points, embedded in 54,000 words of sustained argument, provide a window on to the wider debate and, with Gorshkov as a constant factor in the analysis, allow one to draw certain inferences as to how opinion divided on these particular issues, in terms of "attitudes" rather than interest groups or institutions. In listing these attitudes, it is not implied that any one person (including Gorshkov) held all these opinions. Gorshkov was defending the navy's case and he would use every argument which would elicit support, even if he had doubts about its validity. Nevertheless, these listings do give some indication of how interests and attitudes might cluster on the wider issues, and cleavages of opinion would appear to exist within groups as well as between them. I have made no attempt to be comprehensive and the opposing lists are not meant to be symmetrical. All the attitudes shown on Gorshkov's side are derived from his articles, but there will be others which he has not brought out, as being irrelevant to his case. The range of attitudes under Gorshkov's opponents is somewhat wider and is inferred both from the content and the fact of Gorshkov's argument. I have, however, only included antitheses where this seemed justified by the analysis.

¹¹⁸ In addition to the straits which control her fleet exits, Russia has a vital interest in passage through the Indonesian archipelago. In the event of war with China, the supply and reinforcement of her Far Eastern front would have to rely heavily on shipping, since the Trans-Siberian railway would be under continuous attack.

¹¹⁹ McCwire (CNA), pp. 42-44.

POTENTIAL SUPPORTERS

A—Attitudes

Those who believed that:

- military power decides the outcome of all international relations;
- mutual deterrence permits greater freedom of military action;
- the navy is an important instrument of state policy in peacetime;
- Soviet forces should be used directly to curb imperialist aggression in local wars;
- imperialist aggression is on the rise and will extend to ocean resources;
- the risk of escalation from local to nuclear war is low;
- the danger of nuclear war with the West continues to be real;
- expenditure on defense must come before all else;
- if nuclear war comes, political objectives can still be achieved in the post-exchange period;
- the navy has an important role in general war;
- arms control should be used to gain advantage in the naval arms race;
- a balanced fleet is essential;
- the Soviet Union requires a worldwide maritime capability;
- freedom of the high seas is important to Soviet interests;
- national jurisdiction should not extend beyond 12 miles from the coast.

Those who were against:

- the withdrawal from Egypt;
- accommodation and detente with the West.

B—Institutions and Interests

- The Party Ideologues;
- The State Security Apparatus;
- The Fishing Industry;
- The Ocean Science Community.

LIKELY OPPONENTS

A—Attitudes

Those who believed that:

- detente is beneficial to Russia;
- Western technology and trade is important to the U.S.S.R.;
- military power has limited utility as an instrument of state policy outside the Soviet bloc;
- arms control and limitations should be pursued for their own sake;
- an assertive naval policy has been counterproductive;
- the risks of nuclear war are high;
- political objectives could not be achieved after nuclear war;
- the danger of a deliberate U.S. attack is negligible;
- Soviet/U.S. confrontation risks nuclear war;
- protracted war at sea is impractical;

Those who wanted to:

- give priority to the domestic economy over defense
- give priority to good relations with Third World countries;

align the Soviet position on the Law of the Sea closer to Third World interests;

reduce the Soviet Union's physical presence in the Third World.

Those who were concerned about:

the diplomatic isolation of the U.S.S.R.;

the ideological implications of naval intervention;

the costs of forward deployment;

the political costs of foreign bases;

the economic costs of a large navy.

Those who believed that the navy's tasks could be discharged:

mainly by nuclear submarines and aircraft;

in large part by strategic surveillance and shore-based missiles.

B—Institutions and Interests

The Intellectual Defense Establishment;

Some of the professional naval strategists;

The Merchant Fleet;

Elements of the Domestic Economy.

C—Individuals

Brezhnev—proposal to limit naval operations, June 1971;

Grechko—Navy Day article in "Morskoj sbornik," July 1971.

The gravamen of the charges which underlie Gorshkov's argument, and the level to which they are addressed, is suggested by three short, self-contained paragraphs which stand out from the review of "The Leninist Principles of Soviet Military Science." As noted earlier, these comprise an out-of-context section of the fifth article, which was signed to typesetting in mid-April. This was at the time of Kissinger's visit to prepare for the Moscow summit, and 3 months before the withdrawal from Egypt.

Like a red thread, the idea runs through all Lenin's directives, letters and orders concerning the need for firmness and purposefulness in carrying out intended plans, and of the falseness of any kind of wavering and indecisiveness at the crucial moments of the struggle. (72/6/14/8:56/1/4)

"The supremacy of the policy of the Communist Party must be openly acknowledged," (qv. Lenin) in the actions of all of the organs of the Soviet state, including the military organ. (14/3:55/2/3)

[Lenin] considered the principle of one-man leadership "(Edinonachilie)," centralism, and unity of will from top to bottom to be the basis of correct and goal-oriented leadership. (15/4:56/2/3)

THE SUBSTANCE REVIEWED

Gorshkov covers a very broad field in his articles, much of which has not been touched on here. The dominant theme of his argument is the importance of naval forces as an instrument of state policy in peacetime and their effect on the course and outcome of wars of all kind; what is more, this importance is increasing. Seapower is a necessary adjunct to great power status, which cannot be sustained without a powerful fleet. But naval forces must be shaped in response

to specific requirements, and this demands a conscious policy concerning the role of seapower in the nations' specific plans. The Soviet Union lacks such a policy. In consequence, it has an unbalanced fleet, tailored for general war, and biased heavily toward submarine and shore-based aircraft. If the Soviet Union is to exploit the potential of seapower as an instrument of state policy, the navy must have a greatly improved worldwide general-purpose capability and be provided with a broader range of surface ship types (possibly including aircraft carriers), and effective afloat support. The Soviet Union has the economic and industrial capacity to build and sustain such a navy.

While we can identify Gorshkov's line of argument with some confidence, and have a general idea of why he is advancing it, it is much harder to know his own preferences on individual issues. He was, after all, concerned to gather a coalition in support of his main objectives, and was probably willing to incorporate other proposals if they reinforced his main argument, and brought additional support to his cause. Take for example his advocacy of an increased naval role in peacetime. This provides an argument in support of more surface ships and a better balanced fleet—but creates problems for the navy if the role is increased before additional ships become available.

One short-term preference can be identified with some certainty. Gorshkov was strongly opposed to the withdrawal from Egypt, both on the basis of what he has to say about the Mediterranean and because of the potential and actual operational penalties. His likely attitude toward a more assertive peacetime role is much harder to determine. Whatever Gorshkov's long-term aspirations, there are likely to have been more immediate concerns about the navy being asked to do too much with too few ships, about the dangers of exposed deployments without adequate shore support, and about the political (and military) risks of physical interposition with insufficient or inadequate forces. Nevertheless, the usefulness of surface ships had to be demonstrated, otherwise the trend would probably worsen.

Moving to the longer term, does Gorshkov really believe in protracted war at sea, or was this another way of enlisting support? It is hard to tell. However, although the nature of wars and the assignment of missions and roles are central to the wider debate, the immediate crux of Gorshkov's argument is likely to have been the allocation of resources to future naval construction.

By 1971, decisions in principle are likely to have been taken on the type and scale of new construction for delivery beginning about 1980, and on the production runs for the rest of the seventies. We do not know what Gorshkov asked for in the way of new construction, but to meet its expanding role and remedy existing deficiencies, the navy would have needed a substantial increase. Current construction reflects *old* decisions, and we will have to wait several more years for shipyard evidence of what was decided. But the indications are

that the ninth 5 Year Plan did not include any significant increase in naval allocations, but nor was it cut back. Gorshkov needed a substantial amount just to stay where he was, and he may have had to fight quite hard not to have existing building rates reduced.

The fact that Gorshkov was able to continue arguing the navy's case, gives some indication of the depth and widespread nature of the cleavage of opinion which existed within the Soviet hierarchy. Some kind of compromise appears to have been reached in the spring of 1973. Brezhnev's policy of *détente* remained in place, but otherwise we have few indications of what was agreed or what the implications were for naval policy. The Gorshkov series was a substantial contribution to this important debate, which addressed fundamental questions concerning long-range objectives and the nature of the Soviet system. His articles provide valuable new insights to the decisionmaking process and where the Soviet navy stands within the national policy. But the series is primarily a polemic, and we must therefore bear in mind that the degree of Gorshkov's commitment to the various arguments he advances is likely to vary greatly.

Navies in War and Peace—Table of Contents

This table of contents has been drawn up on the basis of the title heads used in the original articles. Brackets indicate the absence of a separate heading. Articles varied in length between 3,700 and 6,600 words; three articles contained two "chapters," one contained three. One "chapter" (IX) spread across two articles. Chapter X—"The Soviet Navy in the Great Patriotic War"—is nearly identical to an article published in "Morskoj sbornik" in May 1970.

<i>Title heads</i>	<i>Number of words</i>
I. (Introductory section)	1,520
II. Times Which Are Distant, But Important To Understanding The Role Of Navies	2,490
III. Russia's Difficult Road to the Sea	3,050
IV. The Russians in the Mediterranean	2,440
V. Into the Oceans in the Name of Science	860
VI. The Russian Navy During the Industrial Revolution and the Transi- tion From Sail to Steam	1,685
(Introductory section)	80
Crimean War	970
Russo-Turkish War 1877-78	410
(Conclusions)	225
VII. Navies at the Beginning of the Era of Imperialism	3,550
(Introductory section)	200
Spanish-American War	470
Russo-Japanese War	2,880
VIII. The First World War	5,275
Preparation for War	1,010
Fleet States at the Outbreak of War	350

Navies in War and Peace—Table of Contents—Continued

	<i>Title heads</i>	<i>Number of words</i>
	The German and English Navies in the War	1,345
	The Battle of Jutland	200
	Unrestricted Submarine Warfare	1,145
	The Russian Navy in the War	745
	Some Conclusions on the Influence of Navies on the Course of the War	1,825
IX.	The Soviet Navy	9,115
	The Fleet in the October Revolution	560
	The Navy—an Indispensable and Integral Part of the First Social- ist State in the World	320
	The Leninist Principles of Soviet Military Science	1,240
	Navy Men in the Civil War	1,660
	The Development of the Soviet Navy	5,335
	Restoration of the Navy, 1921-28	925
	The Building of the Navy, 1928-41	4,410
X.	The Second World War	4,565
	Preparation for War	715
	The Role of the Navies in the Second World War and Their Effect on the Course and Outcome of the War	3,850
XI.	The Soviet Navy in the Great Patriotic War	3,700
XII.	The Basic Tasks Discharged by Navies During the Second World War ..	4,840
	(Introductory section)	160
	The Battle of [Sea] Communications	2,725
	Landing Operations	485
	Destruction of the Enemy's Battle Groups	295
	(Review of Individual Type Roles)	685
	(Conclusions)	490
XIII.	Navies as an Instrument of the Aggressive Policy of the Imperialist States in Peacetime	4,488
	(Main discussion)	3,555
	(Concluding paragraphs on the Soviet Navy's peacetime role)	933
XIV.	Some Problems in Mastering the World Oceans	2,655
XV.	Problems of the Contemporary Navy	4,000
	(Main discussion)	3,480
	(Concluding paragraphs)	520
	Approximate total	54,000

THE NAVY AND SOVIET OCEANS POLICY

"Oceans Policy" is an evocative but imprecise term, which I take to mean some overall and reasonably coherent long-term national strategy concerning the use of the sea and its resources. In Western states, such policies are conspicuous by their absence. Has the Soviet Union, with its central planning process, managed to do any better in this respect, and where does the navy fit into the picture?

The sea is used variously for the conveyance of goods and people, for the projection of military power, as a source of living and non-living resources, as an international garbage dump, and as the landing area for space flights and missile tests. Ocean science research is conducted to further these uses. Navies, besides participating directly in the projection of military power, are used to secure or prevent these uses. There is inherent conflict between the enjoyment of these uses by different states, and also between the uses themselves.

It is beyond the scope of this paper (nor have I done the necessary research) to fully evaluate whether the Soviet leadership has sought or managed to impose an overall strategy on these conflicting uses, designed to promote some long-range international goal. But it may help to see where the navy fits into the broader picture if we consider in rather general terms five elements of the problem: (1) the allocation of resources, (2) the setting of objectives, (3) organizational structures, (4) operational control, and (5) strategic infrastructure.

THE ALLOCATION OF RESOURCES

The allocation of resources goes to the heart of the planning process, and to varying degrees the different oceanusers are in direct competition with each other for scarce resources. Policy, in the shape of decisions between competing claims, has therefore to be made, but the question is, on what basis? Ships are metal containers stuffed with men and equipment, and there are five main types of competition involved.

First, we have the nationwide competition for investment funds. It seems fairly certain that the requirements of the major oceanusers are considered under existing categories such as defense, foreign trade, and food and agriculture, rather than under a special maritime category. The navy has to compete for funds within the defense budget; merchant ship requirements are considered within the general demands for domestic and foreign trade, the need to earn foreign exchange, and the avoidance of undue dependence on Western bottoms; and the fishing industry is viewed in terms of the national requirement for protein, and the prospects of the agricultural sector of the economy. External factors are taken into account, such as the fishing fleet's contribution to the foreign exchange problem, the merchant fleet's capacity to supply the Eastern Front in a war with China and to deliver arms and equipment to client states, and the contribution by both of them to foreign policy goals. But these are likely to be seen as byproducts and do not appear to be the primary determinants for allocating funds.

Second, we have the competition for Soviet shipyard capacity. The Ministry of Shipbuilding Production already serves the navy, the merchant, fishing and river fleets, the border guards, the Academy of Sciences' oceanographic interests, and will probably serve the offshore oil industry. Competition for facilities appears to have been resolved in large measure by freezing the allocation of yard capacity and by a fair degree of type specialization, with certain yards (and facilities within yards) being devoted to particular types of production. To some extent this is inevitable, given the increasing sophistication of warships, the differentiation between all types of ships, the constraints imposed by investment in prefabrication and series production, and the very different construction techniques required for different types of vessel. There are some adjustments, as for example in South Yard, Nikolaev where the large buildingway has been used variously for naval construction, fish factory ships and merchant vessels, and in other yards unplanned gaps in naval production have been filled by civilian construction. However, the increasing yard specialization does tend to fix each customer's share of shipyard facilities on a

long-term basis. The last major shift in allocation took place in the middle fifties, when 7 of the 13 cruiser/battleship building ways were reassigned to civilian construction. A gradual shift in the proportional share of facilities has also been occasioned by the building of new yards. Of the five major yards which entered production since World War II, four were designed for the series construction of merchant ships, and only one was assigned to naval construction.¹²⁰ The shift is however somewhat less than the figures might suggest, since there has also been considerable investment in expanding and remodeling naval construction facilities, particularly the main nuclear submarine building yards.

Third, we have the demands levied on the economy at large. Shipbuilding is an assembly industry, which reaches into every sector of the economy. Different clients will have different requirements, large bulk carriers placing heavy demands for steel, while naval construction competes at the high technology end of the economy. Nevertheless, there remains a considerable overlap, in the nature of these demands, and it wasn't for nothing that Khrushchev castigated the navy as "metal eaters." Raymond Hutchings has made an interesting survey of the opportunity costs of the resources used in naval construction.¹²¹

Fourth, we have foreign exchange. Russia has for a long time bought a substantial proportion of her nonnaval tonnage abroad. A large part of these orders are placed with Warsaw Pact countries and Finland, but a fair number of fishing vessels (including fish factory ships) have been built in Western and Japanese yards. We do not know the grounds on which it is decided to order ships abroad, and whether it is balanced against the currency costs which would otherwise be incurred, but this practice obviously has an effect on other claims for foreign exchange and on reducing the ocean users' claims on the domestic economy. The shipbuilding industry now earns a certain amount of foreign exchange on its own account, although mainly with the Warsaw Pact and client states.

Fifth, we have the competition for manpower. Here again the conflict lies more with different sectors of the economy, than between oceanusers. The days when the Newfoundland Banks trained men for the Royal Navy are long past. Although all sailors share a common mistress whom they must respect and learn to handle, their daily occupations are very different. A large part of the fisherman's time is spent gutting, the merchant seaman has long periods of relative inactivity, while Gorshkov's "navyman" is required to be a technically-oriented operator of sophisticated equipment. There is of course much greater overlap in the engine room and on the bridge between the merchant, fishing and oceanographic units, but it is not clear that these categories are in short supply within the Soviet Union. Service at sea provides the average man the rare opportunity to see the world outside Russia.

¹²⁰ Ship Systems Command, U.S. Department of the Navy, *Soviet Shipbuilding*, December 1969, Figure 1.

¹²¹ R. Hutchings, "The Economic Burden of the Soviet Navy," *Soviet Naval Developments*, pp. 210-22.

THE SETTING OF OBJECTIVES

Looking back at the evolution of the main oceanusing organizations in the postwar period, one has the strong impression that in the past, each has marched to its own drum. Shifts in Soviet naval policy have reflected changes in perception of the strategic threat to the Soviet homeland. Investment in the fishing industry began shortly after the war and was prompted by economic studies, showing that it cost twice as much to produce one ton of beef as it did to produce one ton of fish.¹²² The buildup of the Soviet merchant fleet began in the middle fifties, reflecting wider policy changes in the wake of Stalin's death. The Soviet Union increased the scope and intensity of her foreign economic activities,¹²³ and there was a move towards cultivating Third World support with trade, aid, and arms supply.

Fishery operations extended to exploit existing fisheries and open up new ones. The Merchant Fleet's importance as a foreign currency earner/saver increased over the years and, to make economic use of their ships, Soviet shipping companies had to engage in cross-trading, joining the appropriate liner conferences in the process. Both fleets (or industries) were under increasing pressure to operate on a commercial basis, and were required to develop their own investment funds from internal profits. Meanwhile, on the Soviets' own admission, the decision that the navy should move forward in strategic defense was prompted by the new threat of nuclear strikes against Russia from distant sea areas. The protection which this naval presence might afford to merchant vessels and fishing fleets was a bonus, and it was not even mentioned by the navy prior to 1967. Further evidence that in the past, at least, Russian ocean-users have not worked to a common strategy, is provided by the development of their respective positions on the law of the sea. William Butler has pointed to the conflict between naval and fisheries' interests, during the fifties and early sixties, and how slow the navy was to adjust its position so as to match the new operational posture which had recently been adopted.¹²⁴

There is also the fragmentation of oceanographic research, vessels working primarily in support of their parent organization. Thus fisheries research vessels (and Submarines) evaluate new fishery grounds; vessels coming under the Academy of Sciences pursue more fundamental research; and naval hydrographic units are defense directed. There is obviously a considerable overlap of interests and it would appear that results are collated centrally, and of course the work of Academy of Science units is closely related to the navy's concerns. Nevertheless, the separate subordinations persist and how well the programs are coordinated is not clear.

ORGANIZATIONAL STRUCTURE

Distant-water fishing fleets are under the command of a commodore and the fleet's internal structure follows naval lines. This appears

¹²² R. T. Ackley "The Fishing Fleet and Soviet Strategy," United States Naval Institute Proceedings, July 1975, p. 3.

¹²³ R. Athay "Perspectives on Soviet Merchant Shipping Policy", Soviet Naval Developments, p. 94.

¹²⁴ W. Butler, "The Legal Dimensions of Soviet Maritime Policy," Soviet Naval Developments, pp. 118-119.

to be more in the interests of effective administration and control (all fishermen are pirates), than of having a quasi-military organization. The commodore is himself a member of the industry.

Merchant and fishing fleet officers carry reserve rank in the navy. Since the middle fifties naval officers have gone to sea in merchant ships to gain distant water experience and to reconnoiter distant coasts. The merchant fleet is a uniformed, well-disciplined service with its own training schools and fleetwide career structure and is headed and run by civilians.

The structure of Russia's internal organization, its essential services, its military reserve system, all reflect the lessons of June 1941 and hangovers from the cold war. National mobilization is still a live concept and the merchant and fishing fleets reflect that requirement. However, although they are structured on military lines, in their day-to-day operations their officers mainly pursue standard commercial objectives.

OPERATIONAL CONTROL

In the main, the pattern of deployment and the operational employment of individual ocean-users is the responsibility of the parent organization, delegated as appropriate to the man at sea. It is generally accepted that merchant and fishing vessels are predominantly engaged upon their "lawful" pursuits although all ships are required to report information of operational interest to Moscow. Fishing fleets working in the more strategic areas are likely to include one or two ships which are specially fitted for intelligence work, and minor collection requirements will be levied on the officers of merchant vessels visiting foreign ports.

All merchant, fishing, and other ships are required to report their daily position at sea, hence Moscow knows the location of all Soviet vessels around the world, and can redeploy them if required. Among other things, this facilitates the navy's use of freighting tankers for refueling, although their organic replenishment capacity is progressively improving. Merchant ships are used to deliver military supplies to client states, and to combatants. But this does not differ from Western practice, except for the organizational/contractual arrangements.

On a day-to-day basis, Moscow has much greater direct operational control of all Soviet flag vessels than does the West over its ships, and this has various operational advantages, particularly in a sudden crisis or at the brink of war. The Soviets gave a limited demonstration of this capability during OKEAN-75, when they diverted merchant ships and ordered others to leave port in midloading, in order to stage a convoy exercise in the northwest Pacific. The West has comparable arrangements for wartime control, which can be implemented if circumstances demand. Meanwhile, the close but informal links between Western governments and shipping companies were demonstrated in the redeployment of tanker traffic during the 1973 oil crisis.

STRATEGIC INFRASTRUCTURE

The spread of Soviet trading and fishery interests has created a growing influence-structure of Soviet consular and trade officials, of fishery plant and port installation advisers, and even a harbor master. The Russians have helped to build new merchant and fishing port facilities and to develop local fishing industries. The Soviet Navy has also been developing base facilities of various kinds in Cuba, Egypt, Syria, Somalia, and apparently hopes to gain access to western-most Africa.

Does this process follow any coordinated pattern? Do we see an initial penetration by the merchant fleet, expanded by the fisheries people and finally exploited by the navy? On rather limited evidence I would answer no. Each organization appears to pursue its own special interests. The navy seems to have clear geostrategic requirements and has zeroed in on these. The cases of Egypt,¹²⁵ Somalia,¹²⁶ and (as yet unsuccessful) West Africa¹²⁷ provide good examples of how strongly focused these requirements are. The fishing fleets have a different set of requirements related to the whereabouts of fish, and they need access to local ports for fresh supplies, to carry out repairs in sheltered waters, and to be able to ferry crews in and out by air. The merchant fleet meanwhile follows the dictates of policy concerning trade, aid, and arms supply. The price of access to naval base facilities will normally include the supply of arms and perhaps aid in the form of fisheries development. The three will therefore frequently coincide, but not in the expected chronological order.

Meanwhile, in strategic terms the value of this infrastructure depends entirely on the political alinement of the governments in power. We are a long way from the days of Western imperial expansion, when European powers moved in to administer directly new colonial territories, or established trading posts and bases as sovereign enclaves possessing a punitive capability. Nowadays, the fact of building a port provides absolutely no guarantee that one will be able to make use of it in the future.

POLICIES TOWARDS OCEAN USE

If we look at the behavior of Soviet ocean-users as a manifestation of underlying policy, we notice two separate tendencies. On the one hand each user is more or less organized along military lines; each comprises a more or less disciplined body of men and women; in each case operational control rests either with the respective ministry in Moscow, or with subordinate agencies such as the naval fleet headquarters, the merchant shipping lines, and the fishing fleet headquarters; and finally, all ships, military or civilian, must report their position and intended movements daily. Because of this centralized structure and the maintenance of a worldwide shipping plot, it is easy for Moscow to take full operational control of all Soviet-flag vessels in time of crisis and to divert individual ships for special purposes.

¹²⁵ See G. S. Dragnich "The Soviet Union's quest for access to naval facilities in Egypt prior to the June War of 1967," *Soviet Naval Policy*, pp. 237-77.

¹²⁶ "The Pattern of Soviet Naval Deployment in the Indian Ocean, 1968-71," *Soviet Naval Developments*, pp. 425-30.

¹²⁷ "The Evolution of Soviet Naval Policy: 1960-74," *Soviet Naval Policy*, pp. 525, 528.

On the other hand, each ocean-user has his own distinct set of short- and long-term objectives which only overlap with the others at the periphery. These different objectives have evolved through quite different processes, at quite different times, to meet quite different needs. They give no evidence of being the result of some master plan. In strategic as well as in tactical terms, each user appears to operate his fleet (conduct his business) so as to serve his own particular purposes. Meanwhile, ocean users are in competition with each other for national resources in several sectors of the economy. And while we can not be certain how allocations are decided, the long-term type-specialization of shipyard facilities suggest an intrabureaucracy bargain rather than a flexible master plan.

If, then, Russia has not been working to some long-range plan in the past, it might be useful to ask whether she in fact needs a tightly coordinated oceans policy. And also to consider why it is so often assumed in the West that a master strategy exists.

Russia's immediate interest in ocean resources predominantly involves fisheries and most of these lie within 200 miles of the world's coastlines. Her interests in nonliving resources are mainly related to oil and gas on her own continental shelf which, under the 1958 convention, is considered a "natural prolongation of national territory," and as such is not really part of a worldwide oceans' policy. Her interest in the resources of the "deep seabed and ocean floor beyond the limits of national jurisdiction" is tempered by the untapped resources of these minerals within her own borders, and the heavy investment and high technology required for seabed exploitation. She does, however, insist on being a party to any international arrangements for allocating these resources, although her concern that the high-technology Western nations should not monopolize the benefits, clashes with her traditional resistance to delegating executive power to international authorities.

The fishing industry which is an *internal domestic* interest, wishes to operate as close to foreign shores as possible, and is opposed to national jurisdictions being extended beyond the 12-mile Territorial Sea. The interests of the ocean science community lie in the same direction. This clashes with Russia's *foreign policy* objective of increasing the Soviet Union's prestige and influence among the nations of the developing world, since the latter are strongly committed to the concept of a 200-mile exclusive economic zone.

Turning from resources to using the sea for navigation, the navy's interests lie with the fishing industry's in opposing extended national jurisdiction, but its primary concern is to insure free transit through key international straits. This clashes with the interests of various Third World states such as Indonesia, Malaysia, and Morocco. In contrast, the merchant fleet is not vitally concerned about the effects of extended jurisdiction nor about a more critical interpretation of "innocent passage"; it comprises modern but rather traditional ships, with few of the giant tankers which worry coastal states.

In establishing her position on Law of the Sea, the Soviet Union has had to balance out these four types of national interest: Domestic, defense, foreign trade, and foreign policy. This done, there is a new framework within which the separate interests can be pursued. Apart from this, it is not at all clear that an "oceans policy" as a separate

component of national policy is necessary, or indeed feasible. As we have seen, interests in ocean use are extensions of those on land, although complicated by the international nature of the operating environment. Distant-water fisheries serve domestic food and agriculture interests and/or foreign trade; naval deployments serve the defense of the homeland and/or foreign policy interests merchant fleet operations serve foreign and/or foreign policy interests. There are policies concerning these four national interests and in every case the "ocean component" is only one of many.

When Western commentators talk about the existence of a master strategy and the central coordination of all ocean activities, they are in fact usually referring *only* to foreign policy interests and the pursuit of international goals. The implication is that the other three interests are to a greater or less extent subordinated to the requirements of an expansionist foreign policy. However, the evidence of the Law of the Sea negotiations would argue otherwise. Russia had a great deal to gain by siding with the Group of 77 in these negotiations; she would have highlighted the intransigence of the "traditional maritime powers" and other capitalist states, and she would have outflanked China in its bid for Third World influence. Instead, her outspoken opposition to the sweeping changes proposed to the existing ocean regime, with its emphasis on freedom of the high seas and narrow territorial waters, put her squarely in the opposing camp. She was coupled with Japan, who like Russia, had invested heavily in expeditionary fishing fleets, as the most intransigent opponent to the economic zone; and linked with the United States and Britain in her insistence on free transit through straits. In other words, defense of the homeland, and the domestic interests of food and agriculture, took precedence over foreign policy goals. Only when she found herself completely isolated did Russia grudgingly adjust her position on the economic zone, and we have yet to see what she will do about the straits issue.

Western insistence on the existence of a Soviet master plan stems from several sources. In large part it is prompted by the organizational structure of their civilian fleets, by the centralized operational control, and by the demonstrated capacity to exercise that control when required. It is reinforced by mistaken assumptions about Russia's national objectives, which ignore the dominance of domestic factors in policy formulation, which underrate the concern to provide an active defense of the homeland against a clearly perceived threat, and which, in the field of foreign policy, overlooks the priority given to the avoidance of general war with the West. It is based on poorly understood memories of the Pax Britannica and echoes of Mahan's historical theories. It reflects the sea's vital importance to the Western alliance, and a sense of worried resentment over growing Soviet infringement of the West's maritime monopoly.

THE SEA IN SOVIET FOREIGN POLICY

While it is incorrect to claim that foreign policy objectives determine Soviet oceans policy, it is true to say that Russia makes extensive use of the sea in support of Soviet foreign policy.

The importance of the sea lies in the access it provides to non-adjacent areas, and Soviet foreign policy has exploited that access mainly with her merchant fleet. The shift of resources to merchant construction coincided with the general reorientation of foreign policy toward the Third World in 1955. Soviet-flag ships with their well-disciplined crews enhance the nation's prestige and influence, particularly when they make well-publicized deliveries of aid. Soviet tankers insure the supply of countries like Cuba or North Vietnam, Soviet merchant ships deliver arms, equipment and logistic support to client states; certain classes were specially designed with large hatches and heavy derricks to permit the shipment of heavy or bulky types of equipment to countries with inadequate port facilities. Meanwhile the Soviet flag can be seen in most countries of the world, and a merchant ship is still just a merchant ship, irrespective of its cargo. It has none of the political overtones inherent in a naval unit, with its warlike armament and special sovereign status. The merchant fleet is still primarily involved in trade and the business of earning foreign currency. But it plays an important role as an instrument of foreign policy.

The presence in distant waters of the fishing fleet, ocean research vessels and space-related support ships is also exploited for political purposes, although to a much lesser extent. Visits by space ships foster the impression of a leading technological power. Naval hydrographic units provide a professional presence in civilian garb. And the fishing fleets' requirement for local support facilities generates considerable income ashore, although this potential influence may be cancelled out by anger at Soviet fishing operations. The fishing industry, however, makes its greatest contribution to foreign policy objectives (and foreign exchange) by the development of indigenous fishery capabilities, and the provision of aid in the form of harbor development, fishery handling and processing facilities, and management and technical assistance.

The navy is also used to further foreign policy objectives, and all foreign port visits will have some form of local impact. Anne Kelly concludes that about 80 percent of these visits are to meet the ships' operational requirements (fresh provisions, rest and recreation, and sometimes fuel), but that the other 20 percent are made for overt diplomatic purposes.¹²⁸ The pattern of Soviet behavior is carefully controlled; in Third World countries the influence target is the local political and military elites, and in the case of client states, there is direct contact with the national leadership.

The number of port visits rose sharply in 1968, and since 1971 naval forces have been used for special operations in direct support of Soviet foreign policy. These have been described in sections I and II of this chapter and divide into two main categories; reactions to U.S. initiatives (i.e., "countering imperialist aggression") and operations intended to "increase Soviet prestige and influence". The latter range from minesweeping and port-clearing operations, to providing the diplomatic support of a Soviet naval presence to influence the outcome of events affecting a client state.

¹²⁸ A.M. Kelly "Port Visits and the 'Internationalist Mission' of the Soviet Navy", *Soviet Naval Influence: domestic and foreign dimensions*, Praegers, forthcoming.

While the presence of Soviet naval units and fishing fleets in distant waters is exploited for political purposes, the requirement for shore facilities to support both types of operation, itself acts as a determinant of Soviet foreign policy, moving the latter in directions which it might otherwise not have taken, and into geographical areas which are not of primary political interest. In particular, the navy's requirement for access to base facilities may conflict with the wider objective of increasing Soviet influence in the world. Mohamed Heikal has described the Egyptian reaction to Soviet base requirements in 1967, when Nasser retorted "This is just imperialism", to Podgorny's full demands.¹²⁹

Reviewing the role of the sea in Soviet foreign policy, there are four points to bear in mind. First, in order to use the sea the way she does, Russia has to rely on maritime stability and the freedom of the seas. She does not have the forces (no country has) to provide protection for her merchant ships and fishing fleets around the world, and it is not in her interests to encourage the breakdown of maritime law and order.

Second, in 1954 the Soviet Union shifted resources from naval to civilian ship construction, a significant indication of the priority attached to different interests in the use of the sea. These cuts have never been restored and in terms of assembly capacity, subsequent capital construction has continued to favor the civilian over the naval sector of the shipbuilding industry.

Third, the sea is nowadays not the only means of providing physical access to distant parts. Although it remains the most economical (and only practical) means of shipping vast quantities of goods and people over long distances for sustained periods, and the only method of transporting really heavy and bulky objects, there have been tremendous advances in aircraft range and payload. This now allows the rapid supply of relatively large and heavy items, including major types of combat equipment, to most parts of the world.

And fourth, there is a very wide range of foreign policy instruments available to the Soviet Union. Access, although essential, is secondary. The first question concerns the most appropriate *type* of instrument to be used in the particular circumstances: diplomatic, political, economic, cultural, subversive or military. That decided, one can then select the best way of applying it, and in many cases, maritime methods will be only one of several alternatives.

SEAPOWERS AND FOREIGN POLICY

Gorshkov gives no indication that a Soviet oceans policy exists,¹³⁰ but he does talk about seapower. On the one hand, he claims that the Soviet Union is constantly strengthening her seapower (73/2/18/2: 128/1/4); and on the other, he complains that the Soviet Union lacks

¹²⁹ M. Heikal, "Road to Ramadan," *op. cit.*, pp. 47-48. See also pp. 166-67 on this general issue of the negative effects of a Soviet military presence.

¹³⁰ The chapter "Some Problems in Mastering the World Ocean" makes a reference to the CPSU program calling for "not only the utilization of known resources, but also prospecting for new ones" and goes on to say that the World Ocean is becoming extremely important in this respect in view of its potential to support the "economic might" of the Soviet Union. The author claims that a great deal of attention was paid to this subject at the 24th Party Congress and offers a truncated quotation from Brezhnev's opening report in support (73/2/15/2: 125/1/2). The full statement in fact refers to a general willingness to cooperate internationally in almost every kind of activity, including for example, energy, transportation, public health, and outer space (24th Congress of the CPSU, *Novosti*, Moscow 1971, p. 38). Doubts about the authorship of this chapter are discussed in the sub-section "Ocean Resources and the Law of the Sea" in Section III of this chapter.

any coherent policy for the development and exploitation of sea power.¹³¹ However, when we read the rather brief passage he devotes to discussing seapower, we see that he treats the other components perfunctorily and does not explain what contribution the merchants and fishing fleets make to this concept (73/2/18-19: 128/2). He starts the discussion by linking the need to strengthen Soviet seapower with the requirement to strengthen the country's defense from the sea (18/2: 128/1/4), and ends it by saying that the most important component of sea power is the navy, "whose mission is to secure state interests on the seas and the oceans and to defend the country from possible attacks from the direction of the seas and the oceans" (18/8:128/2/4). To all intents and purposes, Gorshkov equates sea power with naval forces, and it is the navy which he sees as a potentially powerful instrument of state policy in peacetime.

Even on the basis of Gorshkov's own comments,¹³² it would appear that not everybody in Moscow attaches the same degree of importance as he does to the role of naval forces as an instrument of peacetime foreign policy. It is true that the use of naval units in this way has increased since 1971, reflecting the decision to place an increased emphasis on the role of a Soviet military presence. But as discussed in Section II, it is not clear whether this policy was modified in the wake of the withdrawal from Egypt. For instance, ship/days on distant deployment levelled off after 1971, and the use of naval forces for specifically political purposes levelled off in 1972-73. Meanwhile, since 1973 we have the appearance in combat zones of military personnel from "revolutionary" countries such as Cuba, Vietnam, and North Korea. They man Soviet weapons and equipment, and the Soviet Union's strategic logistic capability brings them to the combat zone and supplies them in action. This may well reflect an adaptation of the original policy, which avoids being charged with imperialism and reduces the risk of confrontation.

There would also be the question of the diplomatic effectiveness of naval forces. For example, did the reactive deployment of a Soviet detachment during the Indo/Pakistan war in December 1971 actually achieve anything? Was the force authorized to attack the U.S. carrier group if it had launched its strike aircraft (target unknown), and who would have come out best from the encounter? Did the deployment merely highlight the relative impotence of counterforces in these circumstances? Similarly, what purpose was served by rushing a force to the South China Sea in response to the mining of Haiphong in May 1972, which just hung around for a few days and then returned home?

In the final analysis, the question of effectiveness must depend on Russia's readiness to use force if need be. We lack the evidence to make a firm judgment on this, except to note that Soviet policy has so far tended to be cautious, she has adopted an incremental approach to new initiatives, testing Western reactions before proceed-

¹³¹ See the sub-section "The Need for Naval Policy" in Section III of this chapter.

¹³² In a series of comments which are generally believed to have contemporary relevance, Gorshkov criticizes those who failed to understand the importance to Russia of having a strong navy: Tsarists (72/3/20/3, 21/1; 72/4/9/1, 22/9; 11/2/2, 12/1/6, 25/1/1, 36/1/2) and Fools (72/3/20/2-21/1: 11-12).

ing, and in times of crisis has behaved with great circumspection. However, it must all depend on the type of interests at stake. We have ample evidence that the Soviet Union reacts vigorously to a perceived threat to the security of the homeland, reactions which have ranged from the military occupation of Czechoslovakia to the investment of vast resources in trying to provide antimissile defense or develop a counter to Polaris. But it does not seem that the Soviet Union attaches the same type of urgent commitment to her long-range international goals. After all, the inexorable processes of history are on her side and she can afford to win some, lose some. Meanwhile, direct confrontation with the United States, inevitably carries some risk of escalation to nuclear war, particularly if high-value units like carriers are involved.

It therefore seems unlikely that all of Gorshkov's claims concerning the role of the navy in peacetime have been accepted. Nevertheless, naval forces do have a wide range of capabilities and will doubtless be used accordingly for political purposes. Their "main mission" of defending Russia from attacks from the sea will, however, continue to have priority. Two points remain unclear. First, whether the Soviets are prepared to allocate shipbuilding resources to support a political role, over and above what is required for the war-related missions. And second, whether they are willing to apply naval *force* to achieve less than vital objectives. Meanwhile, the Angolan affair illustrates how well served Soviet policy is by her merchant fleet and airlift capability. Limited naval forces were, however, deployed to the area and lent the authority of a "Soviet military presence".¹³³

FUTURE PROSPECTS

The most significant aspect of Gorshkov's articles is that they were written at all. Their publication provides an insight to the major debate which from other evidence we know was in progress between 1969 and 1973, and which in the military field extended and expanded the debate which had been underway since 1960. The articles advance a powerful argument for the importance of the navy's role in war and as an instrument of state policy in peacetime. But they are primarily an exercise in advocacy, a polemic, and although we can obtain a reasonably clear understanding of what Gorshkov actually said, when it comes to what his policy preferences were in 1971-72, we can only be certain of two. First, he considered that the Soviet Union had an unbalanced fleet, which was deficient in surface ships, both as to numbers and the range of types, and that the navy had been shaped too closely to a single, restrictive, and largely defensive mission. And second, he strongly opposed any weakening of Russia's position in the Eastern Mediterranean, either by withdrawing Soviet

¹³³ It is too early to assess the Soviet Navy's contribution to this operation, since we lack information of U.S. naval movements. The landing ship which normally patrols off Guinea, moved down to Pointe Noire, Congo, and a SAM Kotlin destroyer took up position to the north of Angola, accompanied by an oiler. A Kresta-class missile cruiser deployed from the Mediterranean and took up station to the south of Guinea, where it was in a position to cover the North Atlantic approaches to Angola; on the basis of established practice one can assume that she had one or more missile-armed submarines in company. Drawing on the pattern of behavior in the Mediterranean, the landing ship may have been standing by in case of need, to evacuate key Soviet personnel and special-value equipment, with the Kotlin having operational control and available to provide combatant support if necessary. The Kresta deployment could have been to serve notice on the United States that Soviet interests were committed.

forces from Egypt, which would imperil the navy's access to her ports and airfields, or through some kind of mutual agreement with the United States. We can also infer that he was averse to any modification of the Soviet position on Law of the Sea which would result in restrictions on passage through international straits.

But his primary concern lay with the structure of the fleet, the pressing need to balance the submarine force with sufficient surface ships of different specialized types, and the need to develop a general-purpose capability. Gorshkov was not seeking to challenge the West for maritime supremacy, but his ships did need to have the capability of operating in a hostile maritime environment, worldwide, and of establishing limited local command in distant sea areas. He blamed these deficiencies on the lack of any coherent policy concerning the role of seapower in Soviet naval plans. And for all practical purposes, Gorshkov equates seapower with naval forces, and the ability to project an effective worldwide naval presence.

Casting his mind back over the 15 years since he became commander-in-chief, Gorshkov had good reason to complain about the lack of any consistent naval policy. He took over the fleet when the threat of assault from the sea had just been downgraded, and the annual tonnage of warship new-construction had been slashed by 60 percent or more, so as to release resources to the civilian economy. Within 5 years, developments in U.S. naval technology had engendered a complete reappraisal of the threat, causing the cancellation of the newly revised programs, and a major shift of naval resources into nuclear submarines. Within another 5 years, there were two major reevaluations of Russia's strategic posture vis-a-vis America, the second of which forced a radical restructuring of the navy and the development of completely new operational concepts.

On each of these three occasions, the new policy approved by the army-dominated leadership involved a sharply focused response to the specific threat, with forces tailored to the defense of the homeland in the context of general war.¹³⁴ And on each occasion, the concept of a strong, balanced fleet, capable of adjusting to changing circumstances, was rejected. The third change of policy required the navy to move forward into a hostile maritime environment, dominated by the West, which had recently endorsed a policy of responding to Russian initiatives on land by seizing their assets at sea. The Soviet fleet had been designed to operate within the range of shore-based air cover, it lacked afloat support and forward bases, and its supply lines could easily be cut. After a long argument, new surface ship construction to support this forward deployment was grudgingly conceded, but only at the expense of other naval programs and a further loss of operational flexibility.

Brezhnev's accession to power first brought a hardening of policy towards the United States, demanding a more assertive posture at sea, and then a move toward detente, with a corresponding increase in the political use of naval forces. But naval procurement remained wholly determined by a narrowly perceived conception of nuclear-missile war, with the other services beginning to play an increasing

¹³⁴ See "The Turning Points in Soviet Naval Policy", *Soviet Naval Developments*, pp. 176-209. Also "Soviet Naval Capabilities and Intentions", and "Soviet Naval Procurement", *The Soviet Union in Europe and the Near East*, Royal United Service Institution, London, 1970, pp. 33-51, 74-87.

part in the navy's main mission. Meanwhile, lacking a balanced fleet and adequate afloat support, the navy's operational effectiveness depended heavily on the availability of ports and airfields in the forward operating areas. And this in turn depended on the willingness of the Soviet leadership to incur the necessary political costs and risks. But it had already backed down from a confrontation with the United States over establishing a base in Cuba in 1970. And now, having finally gained access to Egyptian facilities, and having developed some capability to counter U.S. sea-based delivery systems in the strategically vital Eastern Mediterranean, the navy was in danger of losing these essential facilities, due to a reversal of recently established policy concerning the role of a Soviet military presence in the pursuit of international goals. No wonder Gorshkov quoted Lenin on the need for "firmness and purposefulness in the carrying out of intended plans".

DEVELOPMENTS SINCE 1972

What changes have occurred since Gorshkov wrote his final article in late 1972, and have any of his ideas been accepted? In the main we lack the hindsight to make firm judgments, but there are certain straws of evidence.

THE WAR-RELATED ROLES

The tasks of conducting strikes against enemy territory and of defending Russia against similar strikes by Western sea-based systems, still comprises the navy's main mission.¹³⁵ It seems possible that for operational purposes, the SSBN force now forms part of the Strategic Rocket Forces,¹³⁶ more in the way that Tactical Air is operationally subordinate to the Ground Forces than the organic subordination of the fighter wings to Air Defense (PVO).

Trident will double the range of the Polaris/Poseidon systems, hence (to quote a recent article by Gorshkov), "the front of operations will be expanded accordingly . . . (and) the corresponding growth in the spatial dimension of operations against naval strategic nuclear weapons systems is also quite clear".¹³⁷ Many types of weapon and sensor system will join in "the battle against strategic nuclear weapon platforms", including those from other branches of service.¹³⁸ The problems of coordination are complex, and the need to discharge the task "in the shortest possible time", achieving operational surprise if possible, requires the employment of automated equipment to ensure effective command and control.¹³⁹

Gorshkov explains that the ever-growing scope of war at sea entails the increased involvement of the other branches of the armed forces, which "foreordains the emergence of a strategy of warfare in the oceanic theatres within the framework of a single military strategy".¹⁴⁰

¹³⁵ S. G. Gorshkov "Soviet National Sea Power", *Pravda*, July 28, 1974. For full quotation see Appendix C, note 9.

¹³⁶ See note 40. This might also be inferred from the relatively few references to strategic strike in the Gorshkov series. See Section III—"The Navy's Wartime Task".

¹³⁷ S. G. Gorshkov "The Development of the Art of Naval Warfare", United States Naval Institute Proceedings, June 1975, translated and reprinted from *Morskoi sbornik* No. 12, 1974, p. 56/1/3-4.

¹³⁸ *Ibid.*, pp. 59/2/6, 60/1/1.

¹³⁹ *Ibid.*, pp. 59/2/6, 60/1/6, 61/2/4.

¹⁴⁰ *Ibid.*, p. 65/2/1.

Destroying the enemy's naval forces still comes within the navy's mission,¹⁴¹ but the focus of Gorshkov's exposition is on the two primary tasks and he is talking of war-fighting with nuclear weapons at sea. His conclusion that tactical and strategic time-scales are now equally urgent does not suggest the concept of protracted war at sea.¹⁴²

THE STRUCTURE OF THE FLEET

Since July 1974 at least, surface forces have appeared above naval aviation in the protocol-conscious listings of the naval arms of service.¹⁴³ We will have to wait to see whether this implies that Gorshkov's argument for more surface ships has been heeded (and if so, to what extent), or whether naval aviation has been demoted.¹⁴⁴ As a further indication of the importance of antisubmarine warfare, the "forces and means of antisubmarine defense" appeared as an addition to the usual five naval arms of service, in a fairly standard listing.¹⁴⁵

THE STRATEGIC INFRASTRUCTURE

In 1973, Admiral Sergeev, Chief of Naval Staff, was asked by a Western naval attache what his greatest problem was as the result of the shift to forward deployment. He replied without hesitation: "Bases".

The need for bases in non-Bloc countries (and the reversal of long-standing policy which this implied), seems to have been acknowledged by the middle sixties and debate will have centered on the political-cost-side of the cost/benefit equation. Notwithstanding Gorshkov's arguments, the Soviet Union withdrew her Air Defense units from Egypt in July 1972, and Soviet naval aircraft lost the use of those airfields. The Russians managed to persuade President Sadat to honor the 5-year agreement on naval base facilities, which had been signed by Nasser in March 1968. However, the price for renewing that agreement in 1973, appears to have been the signing of a new arms supply agreement, which provided the means for Egypt's attack on Israel in October that year. But despite this Russian bribe, by April 1974 Egypt was once more reviewing the question of foreign access to her facilities, and during 1975 she imposed restrictions on the Soviet use of her ports and anchorages.¹⁴⁶ The portents had, however, been clear enough, and from the end of the October war, Soviet naval units had begun to make increasing use of Syrian ports, and after April 1974 the navy stepped up its search for alternative facilities in the Mediterranean.¹⁴⁷

¹⁴¹ See note 135 above.

¹⁴² USNIPs, 6/75, 61/1/3-4.

¹⁴³ V. Kasatanov "Na Strazh Otechestv", *Krasnaya zvezda*, July 28, 1974. In his 1973 Navy Day article Kasatanov manages to avoid giving any listing, but does link surface ships with submarines without including air (*ibid.*, July 29, 1973).

¹⁴⁴ It might just reflect the demotion of Naval Air, without any increased resources being allocated to surface ships. The former could be due to the increased use of space systems, and (after losing the use of Egyptian airfields) a decision to reduce reliance on the shore-based air component of the anti-submarine effort.

¹⁴⁵ "Okeanskij Raketonosnij", *Krasnaya zvezda*, July 28, 1974.

¹⁴⁶ G. S. Dragnich "The Soviet Union's quest for access to naval facilities in Egypt prior to the June war of 1967," *Soviet Naval Policy*, pp. 269-70, postscript.

¹⁴⁷ A. Kelly, *op.cit.*

In the Caribbean, substantial facilities had already been provided to Cienfuegos, before development of the nuclear submarine base was halted in response to U.S. objections. However, it really only needed the deployment of a submarine tender for these facilities to be activated.¹⁴⁸ Soviet naval units, including submarines, continued to visit Cuba, and there appears to have been a deliberate policy of probing U.S. reactions to visits by nuclear-powered and/or missile-armed submarines. Meanwhile, Cuban airfields are used extensively by Soviet aircraft flying reconnaissance. On the other side of the Atlantic there has, however, been no success in establishing comparable arrangements with a West African state, although Soviet maritime patrol aircraft do make regular use of the airfield at Conakry in Guinea, and it is also used to stage transport aircraft flying from Russia to Cuba and to states in Southern Africa.

In the Indian Ocean area, a base was already under development at Berbera in 1973 and by 1976 was nearly complete. It comprised an extensive self-contained area with communication facilities, accommodation blocks, and buildings reported to be used for missile test and storage; certain areas were restricted to Soviet use. There is a tank farm in the vicinity and a large jet airfield and a naval storage area are under construction; two other missile base/ports are also reported to be under construction in Somalia.¹⁴⁹

Which brings us to another aspect of strategic infrastructure which needs consideration. The supply of arms and military training is used to build up Soviet political influence. But it has also played a role in "thwarting the imperialists' aggressive designs" by increasing the military strength of Third World countries, thus raising the costs of Western military intervention.¹⁵⁰ In certain cases the supply of naval arms served Soviet interests yet more directly by diverting Western forces from their primary (anti-Russian) assignments. For example, the delivery of ocean-going submarines to Egypt in 1957-58 introduced a complicating factor to Sixth Fleet operations in the Eastern Mediterranean. And the buildup in the Indonesian Navy in 1959-60, including the supply of bombers armed with antiship missiles, had the effect of drawing a large number of British forces east of Suez, including the attack carriers nominally assigned to SACLANT. More interesting still was the shift of Soviet attention back to the Mediterranean in the early sixties at the time of the navy's move forward in strategic defense. Egypt's submarine force was upgraded with second-generation units and she also was given missile-armed bombers, thus posing a direct threat to the Sixth Fleet. And at the other end of the Mediterranean, newly independent Algeria was issued with an instant navy comprising Komar and OSA missile-armed patrol boats, which could attack U.S. forces in the eastern approaches to the Gibraltar Straits. Of course, there is no guarantee that client states will remain true to their patrons and, since "missiles don't know their mums," they can be turned against their donors. However, these arms deliveries did serve to complicate NATO's problems, and give some indication of Russia's geostrategic interests.

¹⁴⁸ B. Blechman and S. Levinson "Soviet Submarine Visits to Cuba," United States Naval Institute Proceedings, September 1975, pp. 31-39. This article offers an extremely perceptive analysis of the motives underlying Soviet visits.

¹⁴⁹ Defence Space Business Daily, Nov. 13, 1975; reprinted in USNIP's, February 1976.

¹⁵⁰ The 1956 Anglo-French operation against Suez provides a good example. A major cause of this debacle was the overestimation of Egypt's military capability when using Soviet weapons, which led to the disastrous delay while an "appropriate" type of force was laboriously assembled.

We can see, therefore, that while the Soviet Navy needs bases primarily to support its forward operations, it is not unmindful that some bases have greater geopolitical advantages than others. The base at Berbera is therefore of particular interest. It not only gives on to the northwest quadrant of the Indian Ocean; it also covers the southern approaches to the Red Sea. It is significant that the Soviets have chosen to station a *Nanuchka*-class missile patrol boat at Berbera, a unit which is well suited to the task of preventing passage through these approaches.

THE PEACETIME ROLE

We have already discussed recent operational developments under the same heading in Section II and in the last part of the previous section, and what evidence there is remains ambiguous. There is also the possible adjustment in the emphasis on the role and nature of a Soviet military presence, in the wake of the withdrawal from Egypt. And there is the leveling off in the deployment levels and in the use of naval forces for political purposes.¹⁵¹

Meanwhile, public pronouncements tell us little. I have not researched the matter systematically, but I get the impression from three statements made within the last 20 months by Gorshkov,¹⁵² that although the emphasis continues to be on protecting and promoting state interests, the concept may now be limited to countering imperialist aggression against the Soviet bloc (the latter including the deployment of seaborne strategic units within range of Russia), and does not extend to imperialist aggression in distant parts of the world. This does not imply any reduction in the role of "increasing Soviet prestige and influence," but may indicate a step back from the risks of confrontation, anyway for the time being.

THE NEXT DECADE

In speculating on what lies ahead, it cannot be overemphasized that we do not have a full knowledge of the points at issue in the major policy debate which was in progress between 1969 and 1973. Nor do we know the nature of the compromise which appears to have been reached in 1973, or the extent to which this agreement is a lasting one. It does, however, seem fairly certain that one of the more fundamental and controversial points concerned the role of military force in achieving the Soviet Union's international goals,

¹⁵¹ The two will of course be related. One can only do so much with a certain number of forces. Furthermore, the leveling off may reflect an operational decision about the number of forces it is possible/desirable to sustain on forward deployment, and may well have no immediate political significance.

¹⁵² S. G. Gorshkov "Na Okeanskoj Vakhte," *Krasnaya zvezda*, Feb. 11, 1976; "Boevye Vypely Rodiny", *Izvestia*, Apr. 29, 1975; "Morskaya Moshch' Strany Sovetov", *Pravda*, July 28, 1974; V. Kasatanov "Na Strazh Otechstva", *Krasnaya zvezda*, July 28, 1974. If this impression is correct, it need not conflict with Grechko's more internationalist tone in his article in *Voprosy istorii KPSS*, No. 5, 1974 (see note 56 above). His words can well describe the involvement of Soviet advisers, technicians and strategic logistic support (including the use of warships to ferry third-party troops), and need not imply direct involvement by Soviet combat units.

in the light of the major developments between 1967 and 1971.¹⁵³ The arguments underlying the Gorshkov series were a significant input to that debate, but again, we have as yet no means of knowing the extent to which they may have influenced the direction of future Soviet policy.

We do, however, know that "peaceful coexistence" has been accepted by the Soviet leadership as a long-term strategy, the term implying a mixture of competition, restraint and cooperation with the capitalist bloc in general, and the United States in particular. Shulman stresses that the important aspect of this relationship is its multilevel nature, which means that interactions on the various planes will often move in different directions.¹⁵⁴ He identifies seven planes of Soviet/U.S. interaction: (1) strategic-military competition; (2) conventional military competition; (3) political competition; (4) economic cooperation and competition; (5) ideological conflict; (6) cultural relations; and (7) functional cooperation. The direction and intensity of the activity on each plane will differ according to circumstances, and may appear to conflict with the idea that "détente is indivisible." The latter is a simplistic concept, whereas the Soviet Union prefers to talk of détente and peaceful coexistence, the latter being a formula for conducting business between opposing social systems, which rules out resort to interstate war, but accepts other forms of international competition as legitimate and indeed inevitable.

We also know that the Soviet Union claims publicly that it "will continue to conduct a resolute struggle against imperialism, and firmly rebuff the evil designs and subversions of aggressors." And, as in the past, it intends to "give undeviating support to the people's struggle for democracy, national liberation and socialism".¹⁵⁵ In other words, Russia will continue to promote "national liberation movements" and other "progressive forces," and to provide various kinds of support to client states.

We have the facts of the SALT accords, the movement toward agreement on European security, the importance of domestic economic factors on all aspects of Soviet policymaking, the worrying state of Soviet agriculture,¹⁵⁶ and the serious lag in many areas of advanced technology. But we also know that the Soviet Union possesses the world's largest shipbuilding capacity, that existing surface warship yards could increase their production rates by moving to shift work, that the armaments industry could by reallocating resources support increased warship production, and that the facilities in most major shipyards (civilian and naval) continue to be expanded.¹⁵⁷

And finally, we may be coming to the end of the "1910 vintage" of senior naval officers, with the next generation moving in to the

¹⁵³ For example: the successful repression of Czechoslovakia; the move to political and military stabilization in Europe; the move toward strategic parity; the SALT probes; U.S. attempts to withdraw from Vietnam; the Nixon doctrine; the United States/China rapprochement; Soviet failure to get support for a South Asian mutual security treaty; the danger of Soviet isolation; the rise of "revolutionary regimes" in Third World countries; Western overreaction to the Soviet naval presence during 1967 Arab/Israel war; marked operational benefits from access to Egyptian facilities; initial impact of military intervention in support of Egypt in 1970.

¹⁵⁴ M. D. Shulman "Trends in Soviet Foreign Policy", *Soviet Naval Policy*, pp. 11-14.

¹⁵⁵ 24th Party Congress of the CPSU, *Novosti*, Moscow, 1971, p. 39, Brezhnev's report.

¹⁵⁶ See A. Nove "Will Russia Ever Feed Itself?" *New York Times Magazine*, p. 9, Feb. 1, 1976.

¹⁵⁷ Based in part on remarks by Rear-Admiral B. R. Inman, Director of U.S. Naval Intelligence to the Advertising Club of Baltimore on Nov 26, 1975, as reported in *Shipyard Weekly*, Dec. 4, 1975.

top posts. Smirnov (b. 1917) relieved Kasatanov as first deputy commander in chief of the navy in October/November 1974. In 1969 he had gone from the naval staff in Moscow to take over the Pacific Fleet as a vice admiral, at the start of the buildup in its strength and the early days of the Indian Ocean deployments. Promoted to admiral en poste, he was again promoted to fleet admiral in late 1973,¹⁵⁸ 1 year before taking over as first deputy. Gorshkov has just passed his 20th anniversary as commander of chief of the navy and, at the age of 66, may be due to step down.

In seeking to assess the future significance of all these varied points, it continues to be useful to talk in terms of the Soviet Navy's war-related role, and the peacetime employment of Soviet naval forces.

THE WAR-RELATED ROLE

In many ways, this is the easiest part to answer, since the Soviets are reasonably outspoken about their operational requirements, even if they give few indications as to how they intend to meet them. As has been shown, besides contributing to nuclear attacks on targets ashore, the navy's primary mission is to counter the West's sea-based strategic nuclear systems at the outbreak of war. It has mastered the problem of permanently targeting U.S. carriers in periods of tension. There is still the question of disabling the carrier before it launches its strike aircraft, but the Soviets appear to be developing some fairly effective answers to this.¹⁵⁹

The problem of countering the ballistic missile submarine is of quite a different order. It requires the capability to track continuously a submerged submarine, with an accuracy which will allow timely kill on command. It is a massive problem and with a system like Trident, the sea areas involved are vast. Yet all the evidence, including Gorshkov's own statements, indicate that the Soviet Union is striving to meet this demanding operational requirement. On the basis of such evidence as Soviet comments that the answer involves several branches of the armed forces articles dealing with various aspects of the ASW problem, and developments in ship and weapon design, several analysts¹⁶⁰ are convinced that the Russians are developing a complex but highly original solution to the problem. This, while still exploiting acoustic methods of detection, will make extensive use of other types of sensors, and will mount them on a variety of platforms, including satellites and surface-effect vehicles.¹⁶¹

¹⁵⁸ Egorov (b. 1918) was promoted at the same time. He took over the northern fleet as an admiral in June 1972, and could follow in Kasatanov's steps by becoming first deputy, if Smirnov takes over from Gorshkov. Egorov and Smirnov are both submariners.

¹⁵⁹ If successful, the SS-N-13 submarine-launched tactical ballistic missile will pose a serious threat. See "Current Soviet Warship Construction and Naval Weapons Development", Soviet Naval Policy, p. 434. Carrier forces could also be targeted by land-based ballistic missiles fitted with similar terminal guidance systems.

¹⁶⁰ Especially K. J. Moore. He has drawn my attention to several articles including: (1) "Non-acoustic methods of submarine detection," (2) "In the world of science and technology: magnetohydrodynamic engines," (3) "Trends in the development of nonacoustic means of detection," (4) "Radar image on the surface of the sea." (Sources: (1) A. L. Prostavok, *Morskoj sbornik* 1965, No. 7; (2) author n.k., *ibid.* 1970, No. 10; (3) Ye. Buzov, source n.k., post-70; S. D. Yeshchenko et al., *Radiotekhnika i elektronika*, 1972, No. 2). See also note 63 above. Polmar mentions a Soviet article (no reference) which describes a laser detector for airborne ASW which could scan a water layer over 400 ft. deep at 100 knots speed-of-advance. (N. Polmar "Speculating on Soviet ASW," *Naval Review*, U.S. Naval Institute Proceedings, May 1976, forthcoming).

¹⁶¹ Including what the Russians term an ekranoplan or wing-in-ground (WIG) effect vehicle. Polmar (op.cit) states that a number of configurations are reported to be under development, ranging from small vehicles to the "Caspian Sea Monster," which may weigh some 500 tons. From information

Looking forward to the period 1978-82, my impression is one of expectation. It seems very likely that the new family of third-generation submarines which we may expect to begin series delivery in 1977-78, will be configured to meet these demanding requirements, the more so since SSBN numbers will be up against the SALT limits by then. I would also expect a whole series of new weapon and sensor systems to enter service during the 5-year period, and to see a progressive shift in the pattern of the Soviet Navy's war-related deployments, reflecting a major reorientation of operational concepts.

This of course assumes that the Russians have been reasonably successful in their research and development. While it is usually possible to perceive the nature of the Soviet Navy's operational requirements, it is much harder to foresee their choice of response, and in the past I have consistently overestimated their capacity to move from an innovative design concept to its practical application. However, they have now been working at this problem for 15 years and the style of public pronouncements might suggest that something could be entering service within 2 to 3 years.¹⁶² And of course the Russians are inveterate and unconventional innovators. Their use of explosive shells at Sinope in 1855 wiped out the Turkish fleet and signaled the demise of wooden walled ships; 100 years later, the Soviet leadership took the decision that cruise missiles should become the main armament of the Navy. And in the war of 1877-78, although totally without a Black Sea fleet, Russian sailors shattered the Turkish Navy by the extensive and innovative use of torpedo-armed small craft. It seems possible that the centenary of this event will be of as portentous as that of the Battle of Sinope.

The surface warship position is much less clear. Assuming that surface construction has now been brought into line with the 5- and 10-year planning cycle,¹⁶³ we might expect a new family of surface ships to begin delivery in 1980-82. However, if the Soviet Union has been able to develop some really effective counter-SSBN system, relying mainly on satellite, submarine, remote-sensor system and land-based weapon, what role is left for the large antisubmarine ships (*Kara*, *Kresta II* and *Krivak*), which now make up the bulk of distant-water new construction? And if the new system can handle submerged submarines, it should also be able to handle carriers. It is, of course, unlikely that any system can be equally effective in all circumstances (e.g., heavy traffic zones or shallow, shoal-infested waters), but it would be bound to have some influence on the need for surface ships in the distant-ASW role. And, since the task of "defending the home fleet areas" has now been assigned to small-hulled surface units operating within range of shore-based support, the future of the larger surface ships would be in doubt.

provided by H. Meier, I gather that U.S. research into this type of system in the early sixties (focusing on its potential for long-range strategic lift), showed that such a vehicle might carry a payload of 250 tons for 5,000 miles at about 90 knots, flying some 30 ft. above the surface; this gives twice the range of a comparable jet. Recent developments should enable the speed to be increased perhaps to 300 to 400 knots while retaining the same range. K. J. Moore suggests that there is no reason why small WIG vehicles should not be launched from a ship such as the *Kiev*, thus bypassing the hydrodynamic thrust/drag hump involved in taking off from the surface of the water.

¹⁶² Past experience suggests there tends to be a 2-year leadtime between published claims and the operational availability of some capability.

¹⁶³ The original 20-year postwar naval building program had an 8-year "Final Delivery Period" which slipped 4 years and ran 1962-1969. This period was extended to 10 years for submarines, which now run on a 5 + 5 system.

This may, of course, have lain at the root of Gorshkov's arguments about the future allocation of resources to naval construction. Arguments which we can only infer, although he does stress that future naval construction must reflect scientifically constructed forecasts of future developments in science and technology, and that it takes years to build a ship.¹⁶⁴ But it also raises the question of whether the process we have observed since 1963 is not just a stop-gap solution, on the well-established Soviet principle that it is important to take some action against a threat to the homeland, even if it is not very effective;¹⁶⁵ if nothing else, it serves to complicate the enemy's problem. In this particular case it also served to gain intelligence on enemy patterns of behavior, and to develop new operational concepts and procedures.

The existence of an interim policy, intended to hold the ring and gain experience while a final solution was under development, would explain several anomalies in contemporary Soviet policy. These include: the reluctance to allocate additional resources to surface ship construction, even though existing units were to carry a heavy operational load during this period; the failure to build additional afloat support ships (tenders) or to divert a small fraction of current merchant tanker construction to serve as fleet replenishment units; and the decision to base operational plans on the availability of shore facilities in the forward operating areas and on the continuing goodwill of the host country, and to bear the inevitable political costs. If this assessment of the original policy decision is correct, what then are the implications for the peacetime employment of Soviet naval forces in the next decade?

THE PEACETIME EMPLOYMENT OF SOVIET NAVAL FORCES

Perhaps the Russians did originally intend the forward basing of surface ships and submarines to be an interim measure, but policies gain their own momentum, situations change and new opportunities present themselves. What is more, the Soviet military rarely discard anything which may have some residual use, and are great believers in both belt and braces.

There is also the special feature of naval strategy which "differs from military strategy in that it is as necessary in peace as in war. Indeed, in peace it may gain its most decisive victories by occupying in a country, either by purchase or treaty, excellent positions which perhaps could hardly be got by war. It learns to profit from all opportunities of settling on some chosen point of a coast, and to render definitive an occupation which first was only transient." That

¹⁶⁴ *Msb.* 72/5/24/3:49/2/4. Gorshkov places notable stress on the importance of the "scientific," "mathematical," "objective" analysis of future naval requirements (72/2/20/3:1/2/2; 73/2/21/6-7; 131/1/1/6, 2/1). This might imply that he is arguing against naval procurement decisions being taken by an army-dominated leadership on common-sense strategic rather than naval-professional grounds. Alternatively, it can be interpreted as intended to reassure those who argue that U.S. naval predominance is too great and the Soviet Union should avoid confrontation at sea.

¹⁶⁵ A good example of this principle is provided by the development of the Soviet air defense system since World War II. At the tactical level it is illustrated by the process of introducing naval weapons, where "initial application" often represents a form of operational development. See "The Turning Points of Soviet Naval Policy," *Soviet Naval Developments*, p. 183-4.

is from Mahan,¹⁶⁶ quoting an unnamed French author. And although the international political circumstances are now very different, and the nature of maritime warfare has changed out of all recognition, the last section of the passage could be used to describe Soviet behavior during the last 7 years.

As we have seen, the geographical pattern of the Soviet Navy's interest in shore facilities fits well with the explanation that Russia's primary concern was to establish the strategic infrastructure needed to support the navy's war-related tasks.¹⁶⁷ However, the question which now faces us is whether, irrespective of the original determinants of this policy, the Soviet Union has decided that naval forces are essential (or cost/effective) instruments of state policy in peacetime, and that a forward-base structure is necessary to support this role. The answer must lie in the future, although we can note that the Soviet political process militates against either/or decisions of this kind, and favors compromises, opportunistic decisions and incremental changes. There are, however, certain points to be made.

The areas where the Soviet Navy has been seeking shore facilities all fit into the pattern of war with the West. However, Somalia has a wider strategic significance. Although I still hold to the opinion that the original decision to develop an operational capability in the Indian Ocean was part of the general policy requiring the Soviet Navy to move forward in strategic defense against U.S. sea-based strategic missile systems, developments in the Soviet involvement with Somalia would seem to reflect other considerations as well. The concern for the U.S. threat continues, and is sustained by the development of U.S. base facilities at Diego Garcia, and by congressional testimony that the Indian Ocean will be an operating area for Trident.¹⁶⁸ And I suppose that the Somalian base, if left undamaged, might have some use in world war, although the Suez Canal would be closed and, assuming that Russia had not already seized the Middle East oil fields, it would be simpler to sink tankers closer to their destinations than in the Indian Ocean. However, there is also the question of China and Southern Africa.

There are two reasons for China being a strategic factor in the Soviet involvement in Somalia. First, Russian military planners must allow that in the event of war with China, the trans-Siberian railway would be cut, and supplies to the far eastern front would have to move by sea, the shortest route being through the Red Sea and across the Indian Ocean. They must also allow that China would seek to disrupt this line of supply, and they would have been particularly concerned by the presence of Chinese trade missions in South Yemen on the other side of the Gulf of Aden.¹⁶⁹

¹⁶⁶ A. T. Mahan, *The Influence of Sea Power Upon History: 1660-1783*, London: Methuen, p. 22.

¹⁶⁷ See appendix A. The interests in the countries controlling the Mediterranean choke points fits into this same pattern. And of course, all the Mediterranean Arab States except Syria give access to some choke points or other, even Libya being strategically located between two.

¹⁶⁸ In justifying to Congress the basing of Trident SSBN in Washington State, a Department of Defense official made specific reference to the advantages of conducting patrols in the Indian Ocean from the Pacific Coast. U.S. Congress, Senate Armed Service Committee, Appropriation hearings fiscal year 1974, p. 728.

¹⁶⁹ This information dates from 1972 and has not been rechecked.

Second, there is the threat to the Soviet Union's southern or Middle Eastern flank. China is contained by Russian forces along some 4,500 miles of frontier stretching from the Pacific to Afghanistan. But westward from there, the situation is open to political exploitation. Through Tibet, China abuts directly with Pakistan with whom she has close diplomatic relations, while Pakistan sees Russia as India's powerful patron, and a direct potential threat to herself. Pakistan and Iran have cultural affinities, and the loss of Bangladesh has forced Pakistan to seek closer ties to the West. Meanwhile, there are long-standing enmities between Iran and Iraq, another client of the Soviet Union. All in all, Russia's southern flank is ripe for Chinese political advancement. Russia's own concern to physically contain China is demonstrated by the substantial military support she gave to Vietnam, by her unsuccessful proposal in 1969 for a south Asian mutual security agreement, and by her present-day policies toward the states which flank China's southern borders. The Soviet Union remains equally convinced of China's worst intentions, and cites Chinese interest in Western Europe and incitement in Eastern Europe as evidence of their attempts at encirclement. It is likely that Moscow sees war with China as a more serious probability than war with the West, and a military base in Somalia could be useful if China threatened to advance along Russia's southern flank.

It is probable that the need to insure the supply by sea of the Far Eastern front is the most important strategic factor, and would of course receive the full support of the ground forces. The access Somalia provides to the Middle Eastern flank would serve as a supporting argument. Southern Africa as a strategic factor is much more problematical, and although of greater interest to the West, it seems unlikely that this would have been a determining factor for reasons which will become clear. Perhaps the most serious development in that area would be if the U.N. General Assembly voted to enforce mandatory sanctions on South Africa by naval blockade, with Russia offering to provide the bulk of the forces. But in such circumstances, most of black Africa's ports would become available and the Soviet Navy could select the ones most suitable for its purposes. The same considerations would apply in all circumstances where at least some black African states want Soviet naval intervention. And in any other circumstances, intervention would be politically counterproductive.

Which brings us back to the primary determinants of Soviet involvement in Somalia. By becoming heavily committed to that country, the Soviet Union inevitably found herself on the opposite side to Kenya and Ethiopia, the latter still being very influential in the OAU at the time of Russia's initial involvement; it also provoked adverse reactions amongst the many Franco-prone states which identified with Franco-Ethiopian interests in northeast Africa, and Malagasy was the most outspoken against Soviet activities in Somalia and in the Indian Ocean in general.¹⁷⁰ And it has generated widespread doubts about the Soviet Union's aspirations in the Arabian/East African area, which the Chinese have been very ready to confirm. We may therefore assume that Russia's primary interests were strategic and not political-influence building, an assumption which is reinforced by Grechko's

¹⁷⁰ A. A. Castagno, "The Horn of Africa and the Competition for Power," A. J. Cottrell et al., *the Indian Ocean: its political, economic and military importance*, Praegers, 1972, p. 168.

visit to Somalia in February 1972. I believe that the buildup in support facilities dates from that period and it would be useful to compare the detailed chronology with developments in Egypt at the same period, remembering that it was July when Sadat asked that Soviet forces be withdrawn. It brings to mind how the British, when they foresaw the need to withdraw from the Canal Zone in the late 1940's, set about building up a new military base in Kenya to take its place as a strategic pivot of British defense policy.¹⁷¹

While providing further factors of grand strategy to explain the pattern of Soviet bases, this still doesn't answer whether the Soviet Union would use its presence in Somalia, or other strategically located countries, to deny passage to selected ships or even to U.S. forces. There are countless scenarios involving the use of naval force in this and other ways.¹⁷² and it seems unlikely that the Russians have themselves reached any irrevocable decisions on this score. However, if they did decide to use force at sea, past experience suggests they would be more likely to employ a proxy. Meanwhile, in terms of their broader foreign policy objectives, they continue to have this major interest in stability at sea, so that they can use the oceans for their various purposes. As the inferior naval power, and having a considerable financial and political investment in merchant and fishing fleets, the Soviet Union may be more wary than most of disrupting the maritime status quo by interfering with the free passage of ships.

Which brings us to the question of the future availability of forces. I have already noted that the prospects for surface warship construction beyond 1980 are still unclear, but at that date we could expect the Soviet Navy to have 4 or 5 aircapable antisubmarine "cruisers", about 35 large antisubmarine ships of 6,000 to 9,000 tons and about 65 destroyer-sized units. The latter would include the 20 major conversions, whose hull and machinery would by then be 20 to 25 years old, the ages of the remaining ships being fairly evenly spread between 1 to 18 years. As for submarines, besides some 60 strategic ballistic missile units, the navy might expect to have about 130 tactical-attack nuclear units and perhaps as many as 150 nonnuclear units less than 25 years old.

It would appear that most if not all of the nuclear submarines will be assigned to the war-related roles, which require the continuous discharge in peacetime of what are essentially wartime tasks. If we are to believe Gorshkov, it would seem that a certain proportion of the surface forces will be required to operate in support of the submarines, and there will also be some units required for in-area duties. Nonnuclear submarines have a primary role of fleet-area defense but are also used on forward deployment and when replaced by nuclear units, they would become available for other employment.

There is relatively little to go on. What evidence there is suggests that until 1980 at least, present levels of deployment will be maintained, and the use of Soviet forces for political purposes will relate to the opportunities presented rather than some master plan. Beyond that, there are several questions outstanding. In particular, when (or

¹⁷¹ P. Darby, "British Defence Policy East of Suez," Oxford University Press, 1972, p. 37. As it happens, plans were subsequently changed, the Kenyan base was never completed and Cyprus took over this role on a much diminished scale.

¹⁷² I discuss some of these in an article written in 1969. See "Soviet Naval Policy: Prospects for the Seventies," *Soviet Naval Developments*, pp. 500-512.

if) the exotic new systems come into service, will surface ships be released from the role of countering sea-based strategic delivery systems, and become available for other employment? Will surface warship construction continue at its present rate throughout the eighties, or will it be cut back, or might it even be increased? And whatever the building rate, will the characteristics of the new surface classes reflect the general-purpose requirements of a peacetime role in support of state interests, or will they continue to be primarily configured for nuclear missile war?

And there remains the question of naval bases. Assuming that the new strategic defense systems have been designed to avoid reliance on the goodwill of distant states, the cost/benefit calculus for naval support facilities in foreign lands will change radically. Egypt is reported to owe Russia \$6 billion for military supplies alone,¹⁷³ and repayment would seem uncertain. The political costs are also high, not only in terms of the Soviet image, but in the influence which it gives the host country over Russian policy. Can these costs be justified by the benefits accruing from the employment of naval forces in support of state interests? If not, and if the arrangements for shore support are allowed to lapse, this will affect the possible levels of forward deployment unless afloat support is provided in lieu. However, because of the Chinese factor, Somalia is likely to remain an exception to this process, nor would any such change of policy apply to air-staging rights.

Much of the emphasis in this discussion has been on why the Soviets have acted the way they have, and may act in the future. When possible, it is important to identify the primary determinants of policy, since this gives some indication of the level of political commitment behind the policy, and the level of risk which can be accepted in achieving its objectives. On the basis of the expenditure of resources, there is little doubt that there is a high political commitment to the mission of countering Western sea-based strategic delivery systems. There is also high political commitment to the containment of China and her defeat in war. We are, however, much less clear about the level of commitment to other policies, or even how the Soviets see the relative utility of various instruments of foreign policy; in particular, the role of military force outside the Soviet national security zone. These kinds of issue seem to have lain at the heart of the prolonged debate on the future direction of Soviet policy. If we are to respond constructively we need to know the answers to a whole range of questions, including the following:

Having countered the U.S.A.'s advantage of being able to negotiate "from a position of strength" in the strategic field, by achieving nuclear parity, are the Soviets now seeking to achieve a comparable situation in the competition for world influence, by countering the U.S.A.'s capability to project military force by sea?

What priority does the Soviet Union attach to the task of "countering imperialist aggression" in distant parts of the world. Is it prepared to interpose Soviet forces and risk military conflict with the United States?

¹⁷³ London Times, February 21, 1976.

Does the Soviet Union consider a powerful navy a cost-effective instrument for the protection and promotion of Soviet state interests in peacetime? (i.e., excluding the role of defending the homeland).

What utilities does the Soviet Union ascribe to the purposive and the preventive uses of military force outside Russia's national security zone?

IMPLICATIONS FOR THE WEST

A noticeable feature of Soviet naval policy since the war is how closely it has reflected changes in the Soviet perception of the threat of assault on Russia from the sea. We see the initial postwar mass-construction programs to meet a misperceived threat inferred from the capitalists' war-inflated navies and a Marxist prognosis of history; the savage cuts in shipyard allocation when the likelihood of seaborne invasion was realized to be low; the heavy investment in nuclear submarine construction facilities, responding to the new and correctly perceived threat from carrier-borne nuclear strike aircraft, and to the need to operate in Western-dominated waters; and most recently the radical reaction to the correctly perceived threat from Polaris/Poseidon, involving the navy's shift to forward deployment, while some more effective solution was sought within a broader national strategy.

I am alert to the dangers of monocausal explanations and over-reliance on the action/reaction thesis.¹⁷⁴ But on the threat side it is hard to ignore the scale of Western naval superiority during most of this period, the offensive nature of NATO strike fleet exercises, and the stream of Western pronouncements concerning the naval contribution to launching nuclear weapons at Russia. And on the Soviet side we have the mutually supporting evidence of the patterns of operational employment and interfleet deployment, the task-specific ship characteristics, the radical alterations to the building programs to match the changes in threat assessment, as well as what the Russians say themselves. Since the shift to forward deployment, for obvious reasons the evidence is less clear cut, but we do know that the navy's primary mission is still to counter the West's sea-based strategic nuclear delivery systems.

With the benefit of hindsight, it can be argued with some plausibility that, if the United States had not concentrated on developing attack carriers with a long-range strategic strike capability, then the Soviet leadership would not have been willing to allocate scarce resources to doubling the construction rate of nuclear submarines. And if the United States had not suddenly increased its strategic weapons programs in 1961 and sharply accelerated Polaris procurement, then there would have been no corresponding buildup in Soviet ICBM and the Soviet Navy would not have been made to move forward in strategic defense at considerable economic and political cost. It is, of course, this last development which has brought particular discomfort to the West with its vital interest in use of the sea. And it is relevant to ask whether the West has in fact gained more from their past initiatives than they lost from the Soviet response.

¹⁷⁴ I address this whole question of primary determinants of naval policy, and in the process cover my flank against accusations of "monocausal explanations" or "rational actor models" in "The Turning Points of Soviet Naval Policy," *Soviet Naval Developments*, pp. 176-209.

That is water under the bridge. More important is whether contemporary choices of Western policy can affect the type of answer to the questions we posed at the end of the previous subsection. In addressing this problem we should not assume that all, or even a majority of the Soviet leadership is convinced that traditional Western beliefs about the utility of naval force are applicable to the Soviet Union's special circumstances, taking account of world trends, her particular ideological perspective, the likely balance of naval forces, and the wide range of alternative instruments which are available to her. Modern navies are costly instruments of policy, both to own and to operate, and there are likely to be many within the Soviet leadership who would prefer, other things being equal, to see some of these resources being applied in different ways. These alternative interests find it hard to make ground at the expense of the primary mission of defending Russia against attack from the sea, unless the threat is either reduced or the cost of its counter exceeds all rational bounds. There is, however, more room for argument about the navy's peacetime role, and whether the navy should have any capability beyond that which is required to discharge the primary mission.

Assuming that we are concerned to reduce the level of East/West confrontation at sea, we are therefore talking of the type of U.S. policy decision which would reinforce the arguments of those who are advocating a reduction in the allocation of Soviet resources to warship construction, or at least no increase. And also of those who for different reasons are against an assertive naval role in support of state interests in peacetime. We are talking of helping to fulfill the prophecies of the many different interests which are ranged against Gorshkov and the hardliners in the Soviet debate—and of trying to avoid fulfilling the prophecies of Gorshkov's side of the debate, with their powerful arguments about the importance of a strong defense and the unpredictable nature of Western intentions.

The problem is not an easy one, the more so since we are faced with two very different kinds of Soviet reaction. On the one hand, we have the well-established fact that the Soviet Union will strive to develop a defense against any threat to the homeland, almost irrespective of the costs involved. However, the ABM agreement does provide one example where the Soviets have desisted in their efforts to insure the protection of the center of government (anyway for the time being), partly it would seem because of the problems involved, and also because they could trade it in for other benefits. The Soviet Union is also prepared to seal off certain areas from military competition, such as the seabed and outerspace.

On the other hand, we have the fact that the Soviet Union insists on maintaining an adversary relationship with the West, it is in open competition for world power and influence, and while acting as a status quo power in Europe, it actively advocates revolutionary change in more distant parts of the world. More important, her doctrine requires her to move forward whenever opportunities present themselves. However, equally important, her doctrine gives no great urgency to what is seen as an inexorable historical process, and it castigates adventurism. Hence, the process while continuous, is cautious, although includes a fair measure of opportunism.

There are two further points. While the Soviet leaders view the world through an ideological prism, they are Russians first and last, and a shrewd appreciation of where the Soviet Union's long-term national interests lie within the existing international system, shapes much of their foreign policy. We must also return to the point that the Russians don't throw things away. Having acquired some capability, they will want to get some return on their investment, unless of course the costs of using it exceed the benefits. In discussing the implications of these various points on the choice of U.S. policy, I will once again distinguish between the war-related and peacetime roles.

THE WAR-RELATED ROLE

The threat facing the Soviet Union is nuclear-missile strike from the sea. A direct counter to this threat requires that she know the exact position of each launch vehicle all the time, and have some method of disabling at very short notice. The impact of future U.S. developments will to some extent depend on the approach the Soviets have adopted. If they are relying on trailing individual launch vehicles, there will be a direct relationship between the scale and extensiveness of the Soviet response on the one hand, and the number of U.S. launch vehicles and their area of operations on the other. If, however, the Soviets have managed to develop some kind of area search solution, its scale will not be tied directly to the number of launch vehicles, but will be affected by the range of the latter's weapon systems. It would appear that the Soviets are developing some mix of the two approaches.

On past experience one would therefore assume that Soviet sensor and weapon platforms will operate in the same areas as U.S. launch vehicles, and these platforms will certainly include submarines and probably also surface ships and aircraft for sometime to come. And if Trident opens up new operating areas, such as the Indian Ocean, Soviet forces will follow in its wake. Will this development be in U.S. interests? Why is it necessary for Trident submarines to operate in distant waters? In point of fact the Trident system provides a very good example of how the momentum of technological improvement can obscure the basic purpose of a weapon system. As a missile platform, the submarine brings the advantages of concealment and mobility. The relatively limited range of the early missiles meant that submarines had to operate in forward areas and that nuclear propulsion was necessary in order to allow continuous submersion, and to evade Soviet counterforces. However, the Trident missile has the range to strike at Russia from U.S. coastal waters; the initial version can reach about 80 percent of the U.S.S.R. (including all the important areas), and the final system will be able to cover the whole of Russia and China. However, just as the missile has been improved, so too has the launch vehicle, which is now a very large, deep-diving nuclear submarine, carrying 20 missiles so as to lower the cost per launcher by spreading the capital cost of the submarine. But do we in fact need a launch vehicle of this type and cost? Has sufficient consideration been given to the advantages of a system which could be deployed within the protection of U.S. home waters? This would combine the

security of land-based missiles (which are sited on sovereign territory) with the mobility and concealment of sea-based systems. It would improve the stability of deterrence and would not have to rely on forward bases. It would also allow the use of small diesel-driven submarines, which would be cheap and allow for weapon dispersion. But, more important in the context of this discussion, such a system would be essentially invulnerable except to some kind of barrage fire at the outbreak of war. This would provide solid arguments within the Soviet Union for ceasing their efforts to develop a continuous tracking system, and this, if accepted, would substantially reduce the Soviet requirement for sustained forward deployment. Meanwhile, diesel submarines would be operationally tethered to their home waters and protective ASW systems, and a choice of this kind would set a precedent for moving down the ladder of technology as well as up. It is relevant that the Delta class already has the capability to cover North America from Soviet home waters, although this choice was forced on the Soviet Union by the effectiveness of U.S. antisubmarine defenses. And at the 25th Party Congress Brezhnev has mentioned an interest in reaching some agreement on the scope of Trident operations.

Trident provides one example. The proposed strategic cruise missile is another. In each case we need to first ask what kind of response the new initiative will evoke from the Soviet Union and then consider whether at the end of the process we will be in a better position than we were before we started. In carrying out this process we should also look back at the past and, with the unfair advantages of hindsight, and of a better understanding of Russia's long-term intentions and how she responds to different types of challenge, seek to draw lessons for the future.

THE PEACETIME ROLE

The problem of influencing the development of the peacetime employment of naval forces is obviously far more complex, but certain factors should be borne in mind.

On the negative side of the account we have the fact that the numbers and characteristics of Soviet distant-water forces are determined by the requirement to discharge the war-related tasks. At present they lack any appreciable surplus of capability over these requirements, and in times of sustained crisis, such as in the Eastern Mediterranean during the last three months of 1973, the navy is hard pressed to sustain these tasks. However, in times of low tension, they make use of these same forces for political purposes. If Soviet naval force requirements are predicated on the threat posed by 16 U.S. strike carriers supported by several ASW carriers, a sharp cut-back in these U.S. numbers will have a corresponding effect on Soviet force requirements and, if the forces have already been built, will release a surplus of naval capability over essential defense requirements. This "disposable surplus" could then be made available for other types of employment in peacetime.

A second negative factor is the Soviet Union's perception of herself as a coequal of the United States and her strong resentment of the U.S. policy of negotiating "from a position of strength" during the

sixties. It seems clear that this was a major factor in her decision to go for nuclear parity. Continuing Soviet statements emphasize that future negotiations on a wide range of international matters must be conducted on the basis of equality, and it is not certain what importance they attach in this context to the U.S. capability to project conventional force by sea.

The third negative factor concerns the strong possibility that the Soviet Union will misinterpret the West's public reaction to various international developments. The evidence suggests that the Soviets were unprepared for the political impact of their forces' presence in the Mediterranean during the 1967 Arab/Israeli war.¹⁷⁵ Western commentators not only grossly over-reacted, but went on to insist that a Soviet naval presence must necessarily paralyze Western maritime initiatives, and ridiculed official statements pointing to the exposed nature of Soviet deployments. Although unofficial, it seems probable that these ill-informed but widespread reactions had an appreciable effect on the internal discussions during 1969 on the role of a Soviet military presence overseas, and misled the Soviet leadership as to the true nature of future Western reactions. In the same general context but in a completely different way, the West's vehement reaction to the Soviet involvement in Angola is likely to encourage further initiatives of this kind.

There are also several factors on the positive side of the account. First, the historical record shows that with two important exceptions, the Soviet Union does not appear to attach the same importance to the utility of military force as an instrument of foreign policy as does the West.¹⁷⁶ The two exceptions concern her immediate national security zone, and the possession of military strength as the foundation of her diplomacy, but neither is directly related to the peacetime role of naval forces. The Soviet Union appears to share the widespread doubts about the value of acquisitive military intervention; and she is hesitant to take the risks of supportive intervention. Western experience since the war highlights the political and financial costs of direct military involvement in local wars, added to which the Soviet Union is particularly sensitive to charges of imperialism. With very rare exceptions she is seeking influence, not territory, and with the wide range of instruments available to her, military force can be reserved for vital interests. I am not suggesting there is anything moral about this; just a careful appraisal of political costs and benefits. Such objectivity is helped by the absence of a past tradition of using force in this particular way. Meanwhile, the real opportunities are past. During the 20-year breakup of empire that followed the war, during which the West fought a series of rearguard actions to delay withdrawal, then was the time for Soviet forces to come to the help of "national liberation movements." What now faces Russia in the ex-colonial nations are old-fashioned interstate power struggles, or the turmoil of civil war.

¹⁷⁵ See "Soviet Naval Interests and Intentions in the Caribbean," *Soviet Naval Policy*, p. 478.

¹⁷⁶ K. Booth, *The Military Instrument in Soviet Foreign Policy, 1917-71*, Royal United Service Institution, London 1973. A shortened version of this appears as "Military Power, Military Force, and Soviet Foreign Policy," in *Soviet Naval Developments*, p. 31-56. See also "Soviet Naval Policy: Prospects for the Seventies," *ibid.*, pp. 502-506.

The second positive factor is Soviet sensitivity to political and economic costs. This factor has underlain much of the discussion in this chapter, but it is worth reemphasizing the actual economic costs of operating naval forces in distant sea areas, and the substantial savings of resources that can be effected by withdrawing distant-water forces to home fleet areas.¹⁷⁷ This implies that should the Soviet Navy achieve a disposable surplus of general-purpose capability over the requirements of its primary war-related mission, it does not necessarily follow that it is in Russia's interests to use these naval forces in an assertive peacetime role.

The third positive factor is the Soviet Navy's awareness of the exposed nature of their distant deployments and their evident concern about Western reactions to their initiatives. There are numerous examples of this, ranging from the low profile adopted during the early years of the Mediterranean deployment, to the combat formation adopted when ferrying Moroccan troops to Syria in 1973. This concern extends to the dangers of escalation inherent in East/West confrontation at sea, particularly when high value units armed with nuclear weapons are involved.

And the fourth positive factor is Western naval preponderance and the control we have of our own policy and our responses to Soviet initiatives. The latter cover the full range of policy instruments but I will mention three aspects only. The first involves our response to the incremental approach which the Soviets adopt when launching new initiatives. Our contingency planning should cover these individually insignificant actions and establish in advance where we will call a halt. The second involves international public relations and how we handle the Soviet presence in distant waters. At the moment we tend to emphasize exclusively the high quality of their ships and the threat they pose to the West. The potential threat is true enough but we still need to present a more balanced picture, biased, if anything, the other way. In the international sphere we should concentrate on publicizing the Soviet Navy's adverse features, its limited capabilities, its personnel and maintenance problems; its dependence on other countries' facilities and the exploitative nature of the relationship; its primary focus on its strategic defensive mission to the neglect of client states; how its presence introduces great power confrontation to the area; and so on. And the third aspect involves the nature of our response to major Soviet initiatives.

This last is a very complex matter and most important in terms of Western policy implications. It is directly tied into the Soviet Union's concern to be seen as a coequal with the United States, and her resentment of the latter's "from a position of strength" policy. The problem is how to discourage the development of the more assertive aspects of the Soviet Navy's peacetime role, while avoiding a situation where the Soviet leadership feels so constrained in their actions, that they are provoked into placing greater emphasis on the role of force in achieving Russia's international goals. Somehow, the correct balance has to be struck between the extremes of invariable acquiescence to Soviet initiatives, and automatic attempts to frustrate them. I suspect that the answer lies in a clearer appreciation on the one hand of how the Soviets perceive the contemporary-interna-

¹⁷⁷ See "The Economic Costs of Forward Deployment," *Soviet Naval Developments*, pp. 228-236.

tional (as opposed to long-term revolutionary) "legitimacy" of the policies they are pursuing, and on the other hand of where the West's own long-term interests lie. Recent events in Angola provide a useful, if controversial example of this approach.

The Western alliance in general had long been embarrassed by Portugal's colonial policy. Although it was not prepared to take positive action in the matter, it welcomed the political coup in Lisbon and the decision to grant independence to Portugal's African colonies. Russia had been working to the very same end (if for somewhat different reasons), and had been providing support to one faction of the "freedom fighters," whose guerrilla warfare was mainly instrumental in effecting the reversal of Portuguese policy.

In the internal struggle for power which followed the announcement of forthcoming independence, Russia continued to provide relatively modest support to her marxist-oriented client-faction, stepping it up when U.S. financial support was channeled to one of the opposing groups. She however reacted much more vigorously when the highly successful intervention by a small South African force threatened to drive her proteges from the field. Nominally at the latter's request she brought in Cuban troops armed with Soviet weapons, which turned the battle in favor of the MPLA.

The West shouted "foul," and waxed indignant at the intervention by Cubans, which is somehow seen to have broken the "rules." It is true that the West and certain African states wished to see another form of government emerge in Angola, and one can suppose that Soviet interest prevailed. But by the West's own standards the Soviet action would appear to have been "legitimate." Indeed, even if we ignore recent Western precedents of comparable involvement, it is hard to see what else the Russians could have been expected to do in the circumstances. They had been supporting the MPLA for 10 years, and to have deserted it at this crucial juncture would not only have had adverse effects on the Soviet Union's image in Africa, but it would have been morally reprehensible, even by the lax standards of international political behavior.

For the West to use its naval capability in such circumstances to prevent the supply of Soviet arms by sea, would be the type of action calculated to strengthen the hand of those in Moscow who are arguing that Russia needs a worldwide naval capability, in order to protect and promote her state interests in peacetime. It would appear that in the case of Angola, wiser counsels prevailed, and in any case the United States did not take such action. However, the other forms of Western reaction (particularly their public pronouncements), were such as to promote Russia's interests throughout Africa at the expense of our own; and more serious, to convert what was essentially a series of Soviet reactions to rapidly evolving and unforeseen circumstances, into a highly successful example of the use of military power.

WESTERN INFLUENCE ON SOVIET DECISIONS

I have described a complex structure of interactions and pointed out some of the ways in which Western action can affect Soviet decisions on future policy. To influence Soviet policy we have to

understand it, and a first step in this direction is to cease thinking solely of Western vulnerabilities and to focus on the nature of the Soviet Union's interests and requirements. As we have seen, a wide range of domestic factors are primary determinants of Soviet national policy and even in the core area of insuring the security of the homeland, the possibility of war with China has a major influence on military requirements and the direction of foreign policy. And while the competition for world influence is a significant component of Soviet foreign policy, it is by no means the most important, nor is the competition solely with the West.

The desirability of influencing Soviet policy is easier to assert than to implement. When we consider which action will further this aim, we will think mainly in terms of "encouraging" favorable developments and "discouraging" those which seem against our interests. But we have to be on guard against the inversion of the effects of our action which takes place when indiscriminate "discouragement" serves to provoke truculent Soviet reactions, and thoughtless "encouragement" offers Russia the temptation to exploit new opportunities. Unilateral force reductions come within the latter category, and raise the possibility of creating a "disposable surplus" of Soviet naval capability over Russia's essential defense requirements. U.S. budgetary decisions concerning the number of naval strategic systems such as carrier strike forces or Poseidon submarines, must not only reflect Western requirements, but the effect such decisions will have on Soviet policy options.

In conclusion, I return to the basic question of Russia's interest in the use of the sea. The evidence which has accumulated since 1945 in terms of her allocation of resources, the pattern of maritime activity and the ton of public pronouncements suggests that the Soviet Union's primary interest has been to exploit the living resources of the sea, and to use the sea for trade, aid and arms supply in distant parts of the world. She is also deeply concerned about the threat of attack from the sea with nuclear weapons. For a nation such as the United States of America, which has been weaned on Mahan's milk and brought up on the puberty theory of sea power,¹⁷⁸ it is hard not to assume that Russia must also want to use the sea to project military force in peacetime. But this is in no way self-evident. Traditionally, the navy's primary mission has been to defend Russia against attack from the sea and this same mission persists today. Russia has almost 300 years of naval history behind her, and for the last 200 years her navy has been the third or fourth largest in the world. But most of this time it was seen as an expensive necessity and not as a cost/effective instrument of an assertive foreign policy. In other words, not only are our circumstances, problems, and priorities different, but so are our traditions and historical experience.

It is not therefore inevitable that Russia will seek to develop a powerful navy for peacetime use. Indeed, it seems more likely that the question of the navy's cost-effectiveness as a political instrument in peacetime has yet to be finally resolved. If this is so, then "sobriety

¹⁷⁸ The "Puberty Theory of Sea Power": "As great powers become superpowers they need global navies, the same way that as little girls become big girls they need frontal support." The culture-bound origins of the theory are reflected in the fact that the second part of the analogy does not hold worldwide.

in Western conduct" becomes particularly important as an input to the Soviet policy process, aimed at "strengthening the defensive, stabilizing tendencies of Soviet foreign and naval policies."¹⁷⁹ In practical terms this means that in our own policies we should take account of the Soviet Union's concern about the strategic threat from the sea, and the reaction this has evoked in the past. At the same time, we should offer discouragement by word and deed to the notion that a powerful Soviet Navy could ever become a cost-effective instrument of state policy in peacetime.

APPENDIX A

THE SOVIET NAVY'S SHIFT TO FORWARD DEPLOYMENT

Most specialists in the field now accept that the initial shift to forward deployment was a response to the threat to Russia from seaborne nuclear delivery systems. Despite this general acceptance, some still find it hard to concede that this strategic imperative was a primary determinant of Soviet naval policy in the Mediterranean. A larger number have yet to accept that the same strategic plan shaped the second phase of the deployment. They argue instead that the motivation was political and primarily intended to extend Soviet influence. There is a decreasing minority who date this shift in policy to the Cuban missile crisis in 1962, and a few go back to Lebanon in 1958.

This disagreement is worth exploring, since the why of policy is at least as important as the what, and serves to indicate the type of political commitment there is to different policy outcomes. This is particularly relevant to the peacetime employment of naval forces, where the relative levels of political commitment and willingness to take risk is likely to determine the outcome of naval confrontations in distant sea areas.

Unquestionably, the Soviet Union has sought to exploit the presence of its naval units on forward deployment for political purposes, and after 1968 there was a marked rise in foreign port visits. The Soviet Union has also been increasingly concerned to contest the West's unhindered use of the sea to project military power in distant parts of the globe, and presumably the possible political spinoffs from forward deployment would have been a factor in the decisionmaking process. But this does not mean that political influence building was the primary determinant of this costly shift in naval policy. To assert that it was is to ignore the evidence in terms of when the decision was taken, the areas chosen for deployment and the operational employment of the forces within these areas.

First the dates. It was in 1959 that Khrushchev announced the Soviet Union's intention to concentrate on submarines and stressed the limited utility of surface ships;¹ the truth of this claim is supported by shipbuilding evidence and reflects a decision which was probably reached in 1957-58.² That is, despite the role played by Soviet surface ships in the 1957 Syrian crisis, and the landing of U.S. Marines in Lebanon in 1958, the Soviet leadership chose not to give any priority to the peacetime employment of naval forces. And yet in 1959, the Soviet Navy was in a much better position to establish a surface presence in the Mediterranean than when they set about the task in 1963-64, when there had been a virtual 4-year hiatus in surface ship construction.

The decision that the navy should move forward in strategic defense was almost certainly taken before the 22nd Party Congress in October 1961 (i.e., 12 months before the Cuban missile crisis), and there was mounting evidence of this change in policy by February 1962.³ In October, Marshal Malinovskij had indicated a substantial revision (and in some ways a reversal) of the new defense policy announced by Khrushchev in January 1960, which appears to have been prompted by what was seen as the major shift in America's policy, following Kennedy's inauguration. Undoubtedly, the experience of Cuba influenced the debate about what was needed to imple-

¹⁷⁹ Franklyn Griffiths "Forward Deployment and Foreign Policy," *Soviet Naval Developments*, p. 14.

¹ R.W. Herrick, *Soviet Naval Strategy*, Annapolis, Md., United States Naval Institute, 1967, p. 67.

² See "The Turning Points in Soviet Naval Policy" in *Soviet Naval Developments* p. 202.

³ E.g. the series of articles and statements rehabilitating the role of surface ships, which began to appear in 1962 (see Herrick, *op. cit.* pp. 72-74); and the key appointment of Admiral Kasatanov (subsequently 1st Deputy commander in chief of the Navy), to be commander in chief northern fleet in February 1962.

ment the shift to forward deployment. But to claim (as some do) that Cuba "taught the Soviet Union about sea power" is to disregard the preceding 200 years of Russian naval history, and to imply that maritime policy derives from some arcane science, rather than from a balancing of priorities.

Next, deployment areas. The eastern Mediterranean is significant to the Soviet Union in both strategic and influence building terms. But her physical involvement in Egypt has worked to her long term disadvantage, and the nature of her demands for naval support facilities in June 1967, labeled Russia as "imperialist" in Nasser's eyes.⁴ One must therefore conclude that strategic requirements had priority over political influence-building in the eastern Mediterranean. Indeed in the case of the UAR, one can question who is influencing whom.⁵ It appears that the buildup of arms which enabled the Egyptian attack in October 1973, was Russia's reluctant payment for a 5-year renewal of the base agreement. Somewhat the same arguments apply to the Caribbean. The base at Cienfuegos aroused strong U.S. reactions,⁶ and the fact that the Soviet Union heeded them would not have impressed Castro. Meanwhile, the Cuban base is not necessary to political influence building in the area, but is essential as a means of cutting down time in transit for submarines deployed to counter U.S. naval strike units.

Turning to West Africa, we see that none of the three states courted by the Soviet Navy (Guinea-Bissau, Sierra Leone, and Senegal), provide an important entre to political influence in Africa, but they are strategically located in terms of Soviet naval requirements. The Soviet Union would gain considerable advantage by establishing a naval capability on NATO's southern perimeter along the Tropic of Cancer. This would expose the lines of communication between the United States and the Mediterranean; it would place Soviet forces in a blocking position should U.S. carriers sail for the South Atlantic at the outbreak of war;⁷ and a point d'appui in the area would give access to the northern arm of the Cape Verde ocean basin, which extends northward as far as the Bay of Biscay, straddling the approaches to the Mediterranean. In this latter context, Dakar (in Senegal) and the Cape Verde Islands are particularly well located. As confirmation of the Soviet Navy's operational interest in this region we have the deployment of a submarine tender and a missile support ship in the summer of 1967; these ships spent some 5 months at sea in the general area of the Cape Verde Islands in company with a number of submarines.⁸ From this one might infer that it was originally hoped to develop some system of open ocean support, but since that proved impractical, the Soviet Union set out to acquire access to bases in the region.

If the primary purpose of the Mediterranean deployment had been political, then the comparable deployment for the Soviet Pacific Fleet would have been the South China Sea, where there were many similarities in terms of superpower rivalry, U.S. naval presence, and political opportunities. If the deployment were primarily strategic, then the area which compares most closely with the eastern Mediterranean in terms of potential threat and target coverage, is the Arabian Sea. So far, the Soviet Union has *not* sought to establish a combatant presence in the South China Sea (which is only about 2,000 n.m. from Vladivostok), but has instead chosen to sustain a deployment in the northwestern part of the Indian Ocean, another 4,000 n.m. further away.⁹ The sharp change in the pattern of port visits in the Indian Ocean during 1968-71 falsifies the hypothesis that the primary reason for this deployment was political. It appears that during the first three deployments the area was surveyed for possible bases, Berbera in Somalia was chosen, with Aden as a secondary alternative. After 1969, very few visits were made to other countries. We also have the phenomenon (as in the Cape Verde area) of a submarine tender with submarines in company, spending over 3 months at sea in the area (December 1968 to March 1969), before the decision to go for a base.

⁴ See Mohamed Heikal, "The Road to Ramadan," Collins, London 1975. Extracts published in Sunday Times (London), April 27, 1975, pp. 34-5. According to Heikal, Podgorny asked for a command post and repair shops guarded by Russian marines, and to fly the Russian flag. Nasser retorted "This is just imperialism. It means we shall be giving you a base." Podgorny backed down, but the damage had been done.

⁵ See A. Z. Rubinstein "The Soviet-Egyptian influence relationship since the June 1967 war" in Soviet Naval Policy, pp. 153-181.

⁶ See B. Blechman and S. Levinson "Soviet Submarine Visits to Cuba," United States Naval Institute Proceedings, September 1975, pp. 30-39.

⁷ Admiral Kharlamov discusses the likelihood that carriers will be transferred to the "second wave"; Morskoy sbornik, January 1966. U.S. admirals were discussing this option in the early sixties.

⁸ See "Soviet Naval Policy: prospects for the seventies" in Soviet Naval Developments, p. 496.

⁹ See "The Pattern of Soviet Naval Deployments in the Indian Ocean, 1968-71" in Soviet Naval Developments (supra), pp. 425-441.

Then we have the operational employment of the forces on forward deployment. Despite the increase in naval port visits since 1968 and specific examples of Soviet naval forces being used for political purposes, these activities represent a very small proportion of the overall pattern. The latter is characterized by the amount of time spent in strategically located "picket" and "holding" positions by forces not directly engaged in marking western naval units, and by the little time spent in visiting ports other than their "bases" in the forward operating areas.¹⁰ An analysis of such port visits concludes that the majority reflect primarily operational requirements (fuel, water, provisions) rather than a carefully orchestrated political plan.¹¹ Furthermore, a high proportion of these visits are made by submarines which, however powerful, are sinister and externally boring, and generally considered to be less persuasive than surface ships in the influence-building role. There is also the persistent emphasis on securing facilities ashore for operating long-range aircraft. Rather than building influence, the satisfaction of this strategic requirement involves cashing in on political influence which has been acquired through other means.

And finally, we have the evidence from the design characteristics of the new-construction and conversion programs which have entered service during the last 5 years. First, we have the emphasis on close-range air defense and sided gun-systems. This suggests a requirement for self-defense against a coordinated all-sector attack, and the limited reload capacity similarly suggests defence against a concerted preemptive attack, rather than an engagement of one's own choosing. Second, we have the designation of all these ships as "antisubmarine" units of one kind or another. This is significant in itself, but if I am right that the main missile armament is antisubmarine rather than antisurface (note 11 in the main paper), then the evidence is very powerful. In either case, the absence of missile reloads implies a single strike, rather than multiple or sustained engagements. And third, we have the overall composition of the Soviet Navy, with its heavy emphasis on submarines and aircraft, which is highlighted by the repeated emphasis given to these two arms of service, with surface ships coming a poor third.

There is, therefore, a growing body of concrete evidence in the shape of the shipbuilding and weapons programs, the pattern of deployments and the operational employment of naval forces, which points to the priority given to tasks of countering the West's seaborne strike capability. This evidence is reinforced by what the Soviets say about the navy's missions in their press and publications, and have been saying for the past 14 years. All together, this evidence supports the hypothesis that the primary determinant of the Soviet Navy's forward policy was the strategic defense of the homeland against the threat of attack from distant sea areas.

It does not mean that ships will not be used for political purposes, or that priorities may not change in the future, but so far, the predominance of general war-related tasks has persisted. What we cannot know, is whether the evidence we now see reflects future intentions, or the inertia of discarded policies.

APPENDIX B

THE PURPOSE OF THE GORSHKOV SERIES

Irrespective of the content of the Gorshkov series, it is important to know whether the primary purpose of these articles was to announce a new policy or doctrine, agreed by the politico-military leadership, or whether it was to argue a case of some kind. The answer has to rely mainly on subjective judgments concerning the balance, tone and thrust of Gorshkov's writing, and will be influenced by conclusions concerning "content." And because of this subjective element, it is proper to consider where the balance of informed opinion lies on this matter.

The most widely held opinion (to which I subscribe) considers that the primary purpose of the Gorshkov series was to argue a case and to persuade.¹ He does other

¹⁰For instance in the Mediterranean, Soviet units move to strategically located operational anchorages; Alboran Island and Mellila Point east of the Gibraltar Straits; the Gulf of Hammamet and Hurd Bank, covering the Sicilian Channel; and the anchorages to the east and west (Kithera) of Crete, covering the approaches to the Aegean. Kithera and Hammamet are the two main ones.

¹¹Oral presentation by A. Kelly at "Soviet Naval Developments—III," seminar 8 to 11 Sept. 1974.

¹In 1974 Franklyn Griffiths wrote "There is a dwindling debate as to whether Gorshkov was advocating or announcing a policy in this presentation. Increasingly it is believed that Gorshkov was engaged in advocacy" ("The Tactical Use of Naval Arms Control," Soviet Naval Policy, p. 641). In a straw poll of participants at the 1973 seminar on Soviet Naval Developments the great majority favored "advocacy."

things besides. There is a strong element of "educating the fleet" and "laying down the line." And he makes many points in a debate of which we are only partially aware. But the dominant tone of the articles is that the advocacy and of justification, and not that of an announcement.

There is also concrete evidence indicating that there was opposition to the publication of the Gorshkov series. *Morskoi sbornik* is a monthly journal, which has to be cleared by the censor before it is released to the printing press, usually some 2-10 days before the first day of the month of publication. Robert Weinland has plotted out these dates for a 7-year period (1967-73), and shows that after the fifth article in the Gorshkov series there were significant deviations from the publication norm.² The issues containing the remaining six articles were, on average, all released to the press some 7 days after the first day of the month, and this continued for 4 months after the last article appeared; 11 issues in a row were delayed in this way (August 1972-June 1973),³ and this compares to a total of only 8 delays, scattered among the remaining 72 issues of the 7-year sample.

This run of delays was unprecedented. The fact that they were applied to the navy's professional journal at the very time that the commander in chief of the navy was himself using the journal to make an unprecedented exposition of the navy's case, argues for some kind of cause and effect. And it may not be coincidental that in the issue following the last article of the series, there was an article by Admiral Sergeev in which he stressed that *Morskoi sbornik* must be allowed to discuss matters of current controversy.⁴

The Gorshkov series are best understood as part of a much wider policy debate about military matters in general. John Erickson refers to "somewhat substantial evidence of a significant struggle within the Soviet military establishment for 'missions' (and hence resources)."⁵ There are the indications of a change in policy concerning the utility of a Soviet military presence in Egypt, between 1970 and 1972.⁶ And finally, in June 1973 we have the unexplained cancellation of a series of theoretical articles by senior army officers, which have circumstantial links with Gorshkov's articles. In April 1973, *Krasnaya zvezda* announced the publication of a series of articles on military-theoretical problems under the general heading "The Defense of Socialism. Questions of Theory."⁷ In fact, only two articles appeared. Although neither of them referred to Gorshkov or addressed his arguments directly, both took issue with some aspect of what he said. Zavyalov stressed the primacy of political factors and the fundamental position of the political content of military doctrine.⁸ And Milovidov emphasized that you can't take examples from one historical period to support arguments in the contemporary period, which is of course what Gorshkov does.⁹

The abrupt cancellation of the projected series on military theory assumes added significance when we note that it coincides with the ending of the delay in clearing *Morskoi sbornik* to the press. This was the period following the Central Committee Plenum in April 1973, when Grechko and Gromyko were brought on to the Politbureau, and it seems possible that some kind of compromise was achieved and a decision was reached to close off the debate.

² R. G. Weinland, "Analysis of Admiral Gorshkov's Navies in War and Peace," in *Soviet Naval Policy*, pp. 547-572. Also published as Centre for Naval Analyses, Professional Paper No. 131.

³ Eleven articles were printed over 13 months; July 1972 and January 1973 did not carry the series.

⁴ N. Sergeev (Chief of Naval Staff) "Drug i Sovetchik Ofitserov Flota" *Msb.* 73/3/17/3 & 19/4-5. The article was on the 125th anniversary of the founding of *Morskoi sbornik*.

⁵ John Erickson "Soviet Defense Policy and Naval Interests," *Soviet Naval Policy*, p. 60.

⁶ See "The Wider Political Context" in Part II of main text.

⁷ *Krasnaya zvezda* Apr. 19, 1973 p. 2. Only two articles were published, Apr. 19 and May 17. No article of this type was published in June, but on the 4th of July a new but unrelated series began, without any form of announcement, under the series title "Theory, Politics, Ideology."

⁸ Lt. Gen. I. Zavyalov "The Creative Nature of Soviet Military Doctrine," *Krasnaya zvezda* April 19, 1975. In the early part of Gorshkov's introductory section, he quotes Lenin's dictum that "Politics is the reason, and war is the instrument, and not the other way round. Consequently it only remains to subordinate the military point of view to the political." But Gorshkov goes on to say that in the past, the outcome of foreign policy negotiations has depended on relative military power (72/2/20/5), which is not the standard formula. Gorshkov returns to stress this point in the course of his historical review (72/4/13/10, 14/4, 15/7). In contrast, Zavyalov is at pains to emphasize the primacy of political factors. He also stresses that while military-technical aspects of doctrine will change, as long as the social system remains unchanged (as it has in the Soviet Union), then "the basic fundamental political content of military doctrine remains unchanged." This runs counter to one strand of Gorshkov's thesis.

⁹ Maj. Gen. A. Milovidov "A Philosophical Analysis of Military Thought" *Krasnaya zvezda* May 17, 1973.

THE OPPOSITE VIEWPOINT

James McConnell is the only analyst to have advanced substantial arguments to support the conclusion that Gorshkov is speaking authoritatively.¹⁰

McConnell bases his argument on the grounds that by using certain key phrases, Gorshkov indicates that he is speaking within the framework of military doctrine, as opposed to military science. Since Gorshkov uses these phrases he is therefore making a "concrete expression of military doctrine" which, by definition, is authoritative.

McConnell does not however address the considerable body of evidence which points to the opposite conclusion. He offers no explanation for the anomalies in publication, highlighted by Weinland's analysis. And he completely ignores the question of the tone and thrust of this 54,000 word exposition of Gorshkov's views.

These commissions could perhaps be overlooked if McConnell were offering clear-cut evidences to support his case, but this is not so. His argument is extremely complex, and relies on a detailed analysis of a very small number of textual excerpts, many of which are open to completely different and more straightforward interpretations.

Meanwhile McConnell's analysis can be challenged on its own terms. He acknowledges that at no stage does Gorshkov state unambiguously that the series of articles represent doctrine itself, or an expression of doctrine. But McConnell identifies three criteria which, if satisfied, will demonstrate that a statement is "doctrine." In my opinion, he only manages to satisfy the military-political criterion. His attempt to satisfy the other two rely on textual interpretations which are open to very serious criticism, as I show below.

THE TEMPORAL CRITERION

This lays down that doctrine is only concerned with the present and very near future, and does not consider the past. McConnell admits that over 80 percent of the Gorshkov series is historical analysis, but explains this away by claiming that Gorshkov specifically denies any intention of probing the past; and in so doing, Gorshkov clearly signals that he is merely using history to substantiate doctrinal tenets. The flaw in McConnell's argument is that in fact, Gorshkov does not deny his concern with history, and in his 1,500 word introductory section, refers to the relevance of "history" no less than nine times. McConnell infers Gorshkov's "denial" from one part of a passage in that same section; it is worth quoting in full, so as to get the correct meaning:

"[Therefore], let us examine those questions applicable to the navy in their historical and problematical aspects. In this connection it is not proposed to cover the history of naval art, much less to determine prospects for the development of naval forces. It is only intended to express a few thoughts about the role and place of navies in various historical eras and at different stages in the development of military equipment and of the military art . . ." (72/2/23/2: 3/2/1)

The verb Gorshkov uses—*izlagat'* (translated by JPRS as "to cover" and by McConnell as "to treat"), has some connotation of comprehensiveness, and can also be rendered as "to set forth" or "to expound." The full context thus makes it clear that Gorshkov is saying that he has no intention of covering the (whole) history of naval art, but is going to draw on various examples to illustrate his argument. This cannot be read as denying a concern for history. Taking the whole body of evidence, the articles do not meet the temporal criterion.

THE UNITY OF VIEW CRITERION

McConnell points to the use of the term "unity of views" in doctrinal statements and quotes two examples from earlier statements by Gorshkov: February 1963—"proceeding from the tenets of our military doctrine, Soviet naval thought has developed united views on the role and place of the navy in nuclear missile war . . .";¹¹ and May 1966 "proceeding from the tenets of Soviet military doctrine that are in the form of general principles, united views have been developed on the task of the fleet in modern war and the methods of conducting naval operations."¹²

¹⁰ See CRC 257, Admiral Gorshkov on "Navies in War and Peace," Centre for Naval Analyses, September 1974.

¹¹ "The Great Task of the Soviet Navy," *Krasnaya zvezda*, 5 Feb. 5, 1963. This article set out the requirements for the navy to develop an all-weather ocean-going capability.

¹² "The XXIII Congress of the CPSU and the Tasks of Navy Men," *Morskoj sbornik*, May 1966, p. 8. This was Gorshkov's report to the fleet on the main policy decisions made at the 23d Party Congress.

McConnell argues that the two references to "unity of views" in the Gorshkov series fit within this same category of statement. The first reference appears in the editorial introduction to the series and reads:

"With this issue, the journal begins publication of a series of articles by Admiral of the Fleet of the Soviet Union S. G. Gorshkov under the general title of "Navies in War and Peace." In the opinion of the editorial board and the editorial staff, the publication of these articles will foster the development in our officers of a unity of views on the role of navies under various historical conditions." (72/2/20: omitted)

The second reference is by Gorshkov, and appears towards the end of his introductory section. This is the first part of the paragraph quoted in the previous section, which McConnell used to justify the temporal criterion.

"Taking into account that [an understanding of the employment of various branches of the armed forces] fosters the development of a unity of operational views in the command personnel of the armed forces, let us examine those questions applicable to the Navy, both in their historical and problematical aspects." (72/2/23/2: 3/2/1)

There are significant differences between the content of these two quotations and the two doctrinal statements made in 1963 and 1966. In the first place both the latter refer to unified views having been developed. McConnell defends himself on this score by quoting a Colonel P. Sidorov as saying on one occasion:

"While promoting the development of united views on the basic problems of military development, Soviet military doctrine does not fetter the thinking of military theorists and the practical initiative of military leaders entrusted with the leadership of the armed forces."

No reference is given, so we do not know the context of Sidorov's statement. But while it may perhaps legitimize "fostering a unity of views" as a doctrinal authenticator, it does not dispose of the more important differences between the quotations. McConnell is arguing that Gorshkov is speaking authoritatively. On the basis of the earlier quotations one would therefore expect the editors' introduction to have read something like: "The publication of these articles is intended to foster the development of unified views." Instead, we have the caveat "In the opinion of the editorial board and editorial staff. . . ." That is the very reverse of "authoritative." And equally significant in terms of McConnell's own criteria is the temporal scope of the unity of views which the editors hoped to foster, namely ". . . the role of navies under various historical conditions."

Nor is Gorshkov any more "authoritative." Perhaps the best single-word description of the introductory section is "defensive." In each paragraph Gorshkov seems to be justifying the need for the historical analysis he is about to embark on. And when he does finally say "let us examine those questions applicable to the navy, both in their historical and problematical aspects," it is not "in order to" foster the development of a unity of views. That is merely "taken into account".

And finally, it would seem significant that Gorshkov is interested in developing a unity of present day "operational views," whereas the editors' apparent interest lies in the "the role of navies in different historical conditions." And that Gorshkov is aiming at "the command personnel of the armed forces," whereas the editors hope to influence "our" (that is, naval) officers. Rather than authoritativeness, this divergence creates the impression of an editorial board trying to keep its head down in a major military-political argument.

CONCLUSIONS

Selective textual analysis is fraught with problems, and the wide divergence of possible interpretations is shown in the preceding paragraphs. It is for this reason that well informed judgments concerning the balance, tone and thrust of Gorshkov's presentation are so important in assessing its primary purpose. Despite their subjective nature, these judgments, based on comprehensive analyses, draw on the body of work as a whole, balancing the parts against each other.

The assessment that Gorshkov was primarily concerned to persuade, has been supported by what concrete evidence there is in the form of publication data, and reinforced by evidence that a general debate was in progress at this time. It would need very specific counterevidence to invalidate this assessment, and this has yet to be advanced.

APPENDIX C

POINTS OF DISAGREEMENT IN THE GORSHKOV ARTICLES

This appendix examines in detail certain conclusions drawn by James McConnell from his analysis of the Gorshkov series.

As the result of a comprehensive and most valuable review of Soviet military writing, McConnell has identified an important distinction between the meanings and usage of two Russian words, which are both rendered in English by "defense." He concludes that the term "oborona" is used when talking of the military-political aspects of national defense, while the terms "zashchita" implies military strategic tasks, and that this distinction is consistently observed.

Applying this distinction to the Gorshkov series, McConnell goes on to argue that:

1. When Gorshkov uses oborona in a contemporary naval context, he is referring to the role of ballistic missile submarines in deterring attacks on Russia from the sea, and in a withholding role in war.

2. The Soviet Union intends to withhold submarine-launched ballistic missiles from the initial exchange, for use as a diplomatic instrument during the war and subsequent peace negotiations.

3. Other naval roles, including that of directly countering U.S. ballistic missile submarines, have been downgraded.

The implications of McConnell's argument are significant, and many of them run counter to other types of evidence. His conclusions rest heavily on his interpretation of the scope of oborona as used by Gorshkov, which he sees as being restricted to the deterrent role of ballistic missile submarines (SSBN). I have therefore avoided becoming embroiled in the details of McConnell's reasoning and concentrated on the textual material from which he draws this particular conclusion. On the basis of this analysis, I conclude that:

1. The use of oborona is not restricted to the deterrent role of SSBN. In fact, on the two occasions when Gorshkov is most explicit about the scope of the term, he uses it to cover the role of the general-purpose forces deployed to counter the West's seaborne strategic delivery capability, and their secondary employment to deter the projection of traditional military force by Western navies. He also uses it in ways where it is difficult to define its limits, but which definitely include the role of general-purpose forces. On only one occasion does he use it in a context which might refer only to SSBN.

2. The task of countering Western naval strike units has not been downgraded, but is now "even more important."

I also address the matter of a "withholding" strategy for Soviet ballistic missile submarines. The option of withholding missiles from the initial exchange is inherent in any reasonably invulnerable system, and for operational reasons one would expect at least a proportion of SSBN to be held back. SSBN are part of the Soviet Union's general war-fighting capability and decisions on their use will be related to evolving military-strategic requirements and the military-political opportunities to influence the outcome of the war. This matter is not discussed in the open literature, nor can anything be inferred on this score from what Gorshkov writes, except to note that he does not approach the subject.

GORSHKOV'S USE OF THE TERM OBORONA

The question we have to answer is "What role does Gorshkov have in mind when he speaks of the navy's part in national oborona?" My analysis divides into five stages. First, I look at those occasions when Gorshkov either refers to ballistic missile submarines (SSBN) or to the naval role of strategic strike. I then turn to analyze each of the three references where Gorshkov links the Strategic Rocket forces (SRF) and the Soviet Navy together in some capacity. These four stages are sufficient to clearly identify the scope of oborona as used by Gorshkov on these occasions. In the fifth stage I compare these conclusions against the other occasions when he uses oborona.

REFERENCES TO SSBN OR TO THE NAVAL ROLE OF STRATEGIC STRIKE

There is one ambiguous reference (which I consider at the fifth stage of this analysis), and three others. All of the latter appear in the final article and in none of them is there any accompanying reference to oborona, nor are there any links with the SRF.

Two of the three references are short: (1) "... nuclear weaponry has permitted the navy's submarine forces to become part of the country's strategic nuclear forces ... The ballistic missiles of submarines have insured the capability of destroying

strategic targets of the enemy deep in his territory from different directions." (73/2/19/8-9: 130/1/1-2)¹ (2). "... the basic mission of navies ... in a worldwide nuclear war is their participation in the attacks of the country's strategic nuclear forces [together with two other tasks]" (73/2/21/8: 131/2/2)

The third reference is longer and more explicit:

"A" "[The] foreign and domestic preconditions ... have had a considerable effect on the formation of views on [the navy's] role in modern warfare. Thus, in connection with the equipping of the navy with strategic nuclear weapons, the navy is objectively acquiring the capability not only of participating in the crushing of the enemy's military economic potential, but also in becoming a most important factor in deterring his nuclear attack.

In this connection, missile-carrying submarines, owing to their great survivability in comparison with land-based installations, are an even more effective means of deterrence ... " (73/2/21/2-3: 131/1/2-3)

From these three quotations we can draw two conclusions: (1) the navy had an existing capability to strike at military-economic targets, a war-fighting mission; (2) it was acquiring the capability to serve as a means of deterrence. In "A," Gorshkov implicitly acknowledges that at the time of writing in 1971-72, the SSBN was not yet an important factor in deterring nuclear attack. The new capability being acquired presumably refers to the Delta SSBN, the first of which would begin to enter service in 1973.

THE SOVIET NAVY LINKED WITH THE STRATEGIC ROCKET FORCES—ONE

Gorshkov directly links the SRF and the Soviet Navy in a specific role on three separate occasions, and on two of these he makes use of the term *oborona*. There is a tendency to assume that the link with SRF implies SSBN, but all three references provide evidence to the contrary. We should note that included among the SRF's wartime mission is the task of destroying "enemy means of nuclear attack and troops and naval groupings in theaters of military operations on land and sea."²

The following quotation comes from Gorshkov's final chapter, and is the paragraph immediately following that comprising quotation "A." The physical layout of the page, the context and the actual content of this paragraph make it clear that it is addressing a different subject to that in "A," which is concerned with the capacity for strategic strike against targets on land.

"B" "Only our powerful Armed Forces capable of blocking the unrestrained expansionism displayed today all over the world by imperialism can deter its aggressiveness. In addition, of course, to the Strategic Rocket Forces, it is the Navy which is this kind of force, capable in peacetime of visibly demonstrating to the peoples of friendly and hostile countries, not only the power of military equipment and the perfection of naval ships, embodying the technical and military might of the state, but also its readiness to use this force in defense (*zashchita*) of the state interests of our nations or for the security of socialist countries." (73/2/21/4: 131/1/4)

There are four points to be drawn from this quotation: (1) the navy is defined as the "kind of force" which can deter imperialist expansion/aggression (2) the navy already has this capability; (3) the navy is linked with the SRF in this role; and (4) the navy is described in terms which exclude SSBN being involved.

From a comparison of the two quotations "A" and "B," we can draw the conclusion that in each paragraph Gorshkov is speaking about a different kind of deterrence: "A," deterring the enemy's nuclear attacks on Russia; and "B," deterring imperialist aggression in other parts of the world.

THE SOVIET NAVY LINKED WITH THE STRATEGIC ROCKET FORCES—TWO

The SRF is again linked with the Soviet Navy toward the beginning of the chapter entitled "Navies as a Weapon of the Aggressive Policies of the Imperialist States in Peacetime." Gorshkov has been explaining how the Soviet acquisition of nuclear weapons denied the imperialist powers "the material basis for conducting a policy of nuclear blackmail; a policy of 'from a position of strength' vis-a-vis the Socialist countries." (72/12/14/2: 114/2/2) He goes on to describe how the U.S.S.R and other Socialist countries have stood as an immovable force in the path of U.S. imperialist aspirations, and two paragraphs further on says:

¹References to *Morskoj sbornik* follow immediately in the text, and are shown as (Year/Issue/Page/Paragraph: USNIP Page/Column/Paragraph).

²Marshall of the S.U. A. A. Grechko, "A Socialist, Multinational Army," *Krasnaya zvezda* December 17, 1972.

"C" "The economic might and defense (oboronnaya) power of Soviet Union insures the security of all countries of the Socialist community and is altering the fundamental correlation of forces in the world arena in favor of revolutionary progress and universal peace . . ."

"Among the main means of supporting the high defensive (oborono-) capability of the homeland, we must cite above all the strategic rocket forces and the navy, which in practice embodies in itself many of the means of armed combat which the other branches of the armed services have at their disposal. To a large extent, aviation, the ground forces and the other branches of our glorious armed forces are a means of deterring the aggressive acts of the imperialist . . .

(72/12/15/3-4: 114/2/2-3)

There are three points to be drawn from this quotation: (1) deterrence (sderzhivanie) is in some way distinguished from oborona in this context: (2) the SRF and the navy are already the main means of oborona, whereas we know from "A" that the navy's "nuclear deterrence" capability was still only emerging at this date; and (3) the navy incorporates many of the capabilities of the other three branches, which means that Gorshkov can not be referring only to SSBN.

There remains the apparent anomaly of referring to the role of aviation and the ground forces as being that of "deterrence". This disappears when we recognize that in this chapter Gorshkov is talking about the greater effectiveness of the navy vis-a-vis other forces "to vividly demonstrate the economic and military might of a country beyond its borders in peacetime." (72/12/16/2: 115/1/2)³ He acknowledges that in recent years the arsenal of such instruments has been increased but he points out that in contrast to missile weaponry combat aircraft and military equipment which can only threaten, warships appearing off foreign shores represent a real threat of immediate operations. (72/12/16/3-4: 115/1/3-4) In other words, Gorshkov is talking about an overseas military-presence, and not just navies. He is writing in 1971-72, and the passage quoted must refer to forces which are stationed overseas, primarily in Egypt. Hence the use of the term "Aviation" (Aviatsiya), which encompasses all branches (including air defense) and is not limited to air force units. This also explains why aviation precedes the ground forces, which is contrary to protocol, but reflects their relative importance in this particular role.

Drawing together the evidence from the quotations "A," "B" and "C," we can now say that:

a. The SRF and some part of the Soviet Navy (but excluding the SSBN force), are linked together in the military-political role of oborona.

b. As Gorshkov uses the term in these passages, the role includes deterring imperialist expansionism in other parts of the world, as distinct from deterring the enemy's nuclear attack on Russia.

c. The role involves something more, which may be reflected in the readiness to use force in the defense (zashchita) of the Soviet Union's state interests and the security of socialist countries.

THE SOVIET NAVY LINKED WITH THE STRATEGIC ROCKET FORCES—THREE

The Soviet Navy and the SRF are again linked with oborona in the concluding section of the chapter on "Navies . . . in Peacetime." The passage follows closely after several paragraphs discussing the aggressive policies of the U.S. Navy. It is necessary to quote the passage in full, since selected excerpts tend to be misinterpreted.

"D" "In realistically appraising the growing threat to the security of our country, the CPSU Central Committee and the Soviet Government have seen that the way out of the situation which has been created lies in opposing the forces of aggression on the world oceans with strategic counterforces of defense (kontrosily oborony) whose foundation comprises the strategic rocket forces and an ocean-going fleet."

"The creation at the will of the party of a new Soviet Navy, and its emergence on the ocean expanses have fundamentally altered the correlation of forces and the situation in this sphere of confrontation. The Soviet armed forces have acquired, in the shape of our modern navy, a powerful instrument of defense (oborona) on the ocean axes, a formidable force for the deterrence of aggression, which is constantly ready to deliver punishing retributory blows and to disrupt the plans of the aggressors. And the navy, along with other branches of the Soviet armed forces, is successfully filling its main mission—the defense (oborona) of the country against attacks by aggressors from the ocean axes. The ships of our navy are a threat to no one, but they are always ready to give a deserved rebuff to any aggressor who dares to infringe on the security of the homeland."

³ In fact, Gorshkov tells us in the introduction to the series that this is one of his main reasons for writing these articles. (72/2/23/3-4: 3/2/1-2)

"Thus, the inspirers of the arms race and of the preparation for a new world war, in counting on the forced draught development of their own naval forces and the creation of new problems which are difficult to resolve for the defense of the Soviet Union have themselves been faced with even more complex problems with the strengthening of our fleet on the oceans. The former inaccessibility of the continents, which permitted them in the past to count on impunity for aggression, has now become ancient history."

"But there is still another side to the question."

"With the emergence of the Soviet Navy onto the oceanic expanses, our warships are calling with continually greater frequency at foreign ports, fulfilling the role of 'plenipotentiaries' of the Socialist countries." (72/12/20/5-21/5: 119/1/2-6)

The first point is to clear up a common misunderstanding concerning the sense of the third paragraph of "D." The fact that Gorshkov refers to continents in the plural, indicates that he is not talking about North America, but about the other continents such as Africa, India, Asia, which were previously only accessible to Western forces. The "more complex problems" do not therefore refer to an SSBN threat to the United States but to the complications caused by the worldwide presence of Soviet naval forces.

The second point is that in the second paragraph of "D," Gorshkov talks quite specifically of two different types of oborona: defense on the ocean axes and defense against attack from the ocean axes. He also uses a different form of words in connection with each:

a. The navy is an "instrument of defense on the ocean axes," which can: (1) deter aggression; (2) deliver retributory blows; and (3) disrupt the plans of the aggressors.

b. The navy's main mission (which it shares with other branches of the armed forces) is "the defense of the country against attacks by aggressors from the ocean axes." The navy is ready to rebuff any aggressor who infringes on "the security of the homeland."

Gorshkov is not just using a different form of words to say the same thing twice, in consecutive sentences. He is spelling out two different roles, both of which come within the scope of oborona. The first is to "deter imperialist aggression in distant parts of the world." The second (and more important), is "to provide defense against attacks by Western seabased strategic delivery systems."

This confirms two of the conclusions we have already drawn from the other evidence, concerning the scope of oborona. Is there any reason to change the third conclusion concerning the forces involved, which linked the SRF and Soviet Navy, but specifically excluded the SSBN forces from this particular role? The answer is no, because the evidence in this quotation confirms that conclusion.

The fifth paragraph of "D" links the "emergence of the Soviet Navy onto the ocean expanses" directly with the fact that Soviet warships are calling with "continually greater frequency at foreign ports." This "emergence" can therefore only refer to general purpose forces, and not to SSBN. The same expression is also used at the beginning of the second paragraph, as a preamble to Gorshkov's description of the two oborona roles. It would seem reasonable to assume that the same sense applies in both cases; there is certainly no evidence to the contrary.

Meanwhile, we do have concrete evidence concerning the "creation of a new Soviet Navy" and "its emergence on the ocean expanses," in the form of ship characteristics and deployment patterns. Both terms can be seen to describe accurately what has happened to the general purpose forces since 1963, but not to the SSBN force. As is continually noted by Western commentators, between 1963 and 1972, the Soviet Navy changed from being a force which remained mainly in home waters, to a distant-water fleet, operating in all parts of the world. During that period, ship/days spent "out of area" by non-ballistic-missile units rose by a factor of 12.⁴ During that same period, the composition of the distant-water fleet and the characteristics of its ships changed radically. Without going into details, one can point to the introduction of new types such as helicopter-carrying "antisubmarine cruisers," to several different classes of "large antisubmarine ship," to new classes of submarines armed with new weapon systems, and to a range of new types of aircraft. All of these have been specifically designed to operate "on the ocean expanses," in a way their predecessors were not. In 1967, when Gorshkov wrote that the navy "had now gone out on to the wide ocean expanses,"⁵ this was indeed the case. In 1968, he wrote that the need "to meet the qualitatively new requirements" had involved the "organic restructuring of the navy and the reorientation of traditional naval policy."⁶ This indeed was a "new" Soviet Navy.

⁴ R. G. Weinland "Soviet Naval Operations: 10 years of change," Soviet Naval Policy, pp. 75-386.

⁵ Msb., 67/2/20/3.

⁶ Krasnaya zvezda, Feb. 5, 1968. See also Admiral Kasatanov in KZ Feb. 11, 1968, where he spells out the characteristics of the new navy which had been decided on at some past date.

Compare this with the ballistic-missile submarine force. The Soviet Navy took delivery of its first ballistic-missile submarine in the latter fifties and has had nuclear propulsion since 1959. The only changes have been in the size and performance of the submarine platform, and in the number and range of the missile it carried. When Gorshkov said in 1967 that the navy "had now gone out onto the wide ocean expanses," the Soviet Navy had only nine Hotel SSBN, which had been in service since 1960-62, and the first Yankee would not become operational before 1969. The pattern of SSB/SSBN deployment changed very little between 1964 and 1972, and even in that year, only three Yankee SSBN were maintained on ocean patrol.⁷ Meanwhile, the Delta, with its 4,200 nautical mile missile, is designed to operate from the safety of Russian home waters, representing a withdrawal from the ocean expanses.

Further evidence that Gorshkov is talking about the distant-water general-purpose forces, is provided in the third paragraph of "D." He there ties in "the strengthening of our fleet on the oceans" with the "forced draught development of (the USA's) naval forces and the creation of new problems for the defense of the Soviet Union which are difficult to resolve." This refers to the sharp acceleration of the Polaris program initiated by Kennedy in January 1961, and the shift in U.S. emphasis from land-based to sea-based strategic delivery systems. This shift to sea-based systems has been referred to regularly by Soviet naval commentators over the last 10 years, and is given as the reason why the navy now has to defend the homeland from attack in distant sea areas. It is also widely accepted by Western analysts that this was the underlying cause of the shift to forward deployment.

Finally, we should note that, except for the link between "SRF" and "ocean-going fleet," there is no evidence within quotation "D" to suggest that the SSBN force is the subject of discussion. And, as we have already seen, in the other cases where the SRF is linked with the navy, in one of them the context specifically excludes SSBN ("B"), and in the other the context precludes "the navy" referring only to SSBN. There is therefore no reason why "ocean-going fleet" in quotation "D" should refer to the SSBN force.

THE CONCLUSIONS SO FAR

On the basis of the foregoing analysis, we can conclude that, in the extracts quoted, Gorshkov was discussing the role of the Soviet Navy's general-purpose forces in distant sea areas. This role falls into two parts. Their main mission (which they share with the other branches of the armed forces) is the defense (oborona) of the country against attacks from the ocean axes. They also serve as an instrument of defense (oborona) on the ocean axes, against imperialist aggression. The latter includes both the use of Western naval forces as general instruments of expansionist foreign policy (including repressing liberation movements), and the aggressive deployment of Western nuclear strike forces (carrier and submarine) which serve as an instrument of nuclear blackmail. (72/12/19-20)

These distant-water forces (the ocean-going fleet) are linked with the SRF in this oborona role, and between them, they provide the foundation of the counterforces of defense (kontrosily oborony), which oppose the forces of aggression in the world oceans.

OTHER REFERENCES TO OBORONA IN THE GORSHKOV SERIES

It is not part of my argument that oborona is used exclusively to refer to any particular role. I am merely concerned to show that it is used by Gorshkov in connection with roles other than deterrence and with forces other than SSBN, which I have already done. Does this hold in the remaining cases?

There are five examples of the use of oborona in the last article, three of which appear in the eight concluding paragraphs. Gorshkov uses oborona in the first of these paragraphs, but nothing can be inferred about the scope of the term. (73/2/24/6) In the sixth paragraph he uses it three times, two of which tell us nothing. The third is more informative and refers to the party paying attention "boosting the defensive might of the state, to strengthening its armed forces, to increasing its sea power, and to the harmonious, balanced development of forces of an ocean-going navy." (73/2/25/2) Obviously oborona is not limited to SSBN in this context. The last example is in the seventh and penultimate paragraph of the conclusion and refers to the duty of Soviet Navy men to maintain "a high state of readiness of all naval forces to carry out tasks of defending the state from the maritime axes, and in every way

⁷See "The Evolution of Naval Policy," Soviet Naval Policy, p. 516. Some 20 Y-Class were operational at that period.

to improve the skills of employing combat equipment under any climatic and weather conditions." (73/2/25/4) Climatic and weather conditions are not a factor in the operations of SSBN; they are very important for surface ships, for naval aircraft and for the forward support of submarines.

The other two references appear at the beginning of the chapter. He starts off:

"In taking into account the importance of questions related to the strengthening of the country's defense (oborona) from the maritime axes, the Soviet Union . . . is constantly strengthening her own seapower, including several necessary components." (73/2/18/2)

and then goes on to mention oceanographic research, the merchant marine and the fishing fleet, but concludes:

"However, we must consider the most important component of the seapower of the state to be the navy, whose mission is to protect state interests on the seas and oceans and the defense (oborona) of the country from possible attacks from the direction of the seas and the oceans." (73/2/18/8)

The first reference is not limited to SSBN and takes in the wider aspects of seapower. The context of the second oborona is less clear and I am of the opinion that the paragraph which follows it is a "break" paragraph, as Gorshkov moves from discussing seapower in general to the need for a powerful navy. However, McConnell sees them as all part of the same argument, which links the second oborona to the following six paragraphs. These describe the decision to build a new oceangoing navy in response to maritime encirclement, which would deter the aggressive aspirations of the enemy, and go on to make an enigmatic reference to the mere presence of the fleet presenting "a potential aggressor with the need to solve the same problems which he had hoped to create for our armed forces." This can be interpreted as referring to the SSBN force, although the whole passage is obscure and it could be picking up a reference from the previous chapter on "Navies as Instruments of Peacetime Imperialism." However, this could be our one example of oborona linked with SSBN, although at six paragraphs removed.

On the basis of just these five references, the conclusion can again be drawn that Gorshkov's use of the term oborona is not limited to the role of SSBN and extends to include general purpose forces.

CONCLUSIONS

On the basis of what Gorshkov wrote in "Navies in War and Peace," there appear to be no grounds for assuming that when he uses oborona he is always referring to the deterrent role of SSBN. He uses oborona 12 times in the last 2 chapters, and for 6 of them the context indicates that the term includes the role of general purpose forces.

In the concluding section of his chapter "Navies as Instruments of Peacetime Imperialism," Gorshkov describes the Soviet Navy's two peacetime roles; defense of Russia against attacks from the sea, and defense on the sea against imperialist aggression. He uses oborona for both and the context makes it clear that he is referring to general purpose forces in distant sea areas, and not to SSBN. On one occasion only can oborona perhaps be linked (at six paragraphs removed), with a possible allusion to SSBN, however, oborona is not used in any of the three references which specifically mention SSBN or the naval role of strategic strike.

As used by Gorshkov, national oborona implies a very active defense role, countering Western naval strike forces, deterring imperialist aggression in distant sea areas and being prepared to deliver retributory blows in those areas. The peacetime employment of naval forces in this way falls within McConnell's definition of national oborona as covering the political-military aspects of defense.

Gorshkov only once talks of strategic nuclear deterrence and does not use oborona in that context. This is not to suggest that nuclear deterrence is not part of national oborona. However, the lack of specific reference to that task does raise the question of whether the navy's SSBN force is now perhaps subsumed under the generic term of strategic rocket forces.

THE TASK OF COUNTERING POLARIS/POSEIDON

As far as I can see, McConnell only offers two specific items of evidence from the Gorshkov series, to suggest that the task of countering Polaris/Poseidon has been deemphasized.

One is Gorshkov's statement that "missile-carrying submarines, owing to their great survivability compared to land-based launch installations, are an even more effective means of deterrence." (73/2/21/2-3: 131/1/2-3) This comes in a two-paragraph section in the final chapter, which discusses the navy's contribution to the Soviet Union's strategic delivery capability.

The other is a comment on the very high ratio of antisubmarine forces which were required to limit the operations of diesel submarines in World War II, and how much higher the requirement would be against contemporary nuclear submarines. (72/11/26/6:101/2/1). This appears in a 5,000-word chapter which concentrates entirely on the maritime aspects of World War II, and over half of which is devoted to discussing the battle for sea communications, from which discussion McConnell extracts this comment.

There appears to be absolutely no analytical justification for lifting these two statements from their contexts, three chapters apart, and offering them jointly as evidence on quite a different matter, namely that Gorshkov is announcing that the counter-Polaris role is being deemphasised. Gorshkov devotes a large amount of space to discussing the battle for sea communications in World Wars I and II (his analysis represents 6 percent of the whole series), he obviously considers the subject important to his theme, and it is in that general context that this particular remark about nuclear submarines must be evaluated. The most satisfactory explanation is that Gorshkov is pointing out that the task of attacking Atlantic sea communications will require many less submarines than the Germans deployed, both because of nuclear propulsion and because the West will lack the relative advantages it had in World War II.⁸ It fits in to Gorshkov's argument for a balanced fleet and more surface ships.

Meanwhile, Gorshkov makes only one specific reference to the operational aspects of countering Polaris, and that is favorable. In a passage which discusses the new weapon, sensor and propulsion systems which were then entering service, Gorshkov remarks that nuclear propulsion is transforming submarines into "veritable underwater ships" and goes on to comment that they "are also becoming full-value antisubmarine ships, capable of detecting and destroying the enemy's missile-carrying submarines." (73/2/20/1:130/1/6)

For the rest, there is a strong element of circularity in McConnell's argument. He concludes that the role of countering Polaris has been downgraded and that it is intended to withhold the SSBN force from the initial exchange. He therefore assumes that Gorshkov's remarks concerning the need to provide effective surface and air support for submarines, must refer to the protection of this force in the home fleet area; this in turn will draw forces back from the role of countering Western strike units. But once again the question of context is ignored. Gorshkov's remarks are made in the course of his analysis of the battle for sea communications in World Wars I and II; they concern the lack of surface and air support for offensive submarine operations, both in support of the submarines themselves and as a general adjunct to the type of operation. The context therefore suggests that Gorshkov's concern is for the support of submarines on distant operations rather than in the fleet areas.

Another form of circularity can be found in the argument that: (a) oborona covers the deterrent role of Soviet SSBN; (b) Gorshkov uses oborona when talking of defense against attacks on Russia from the sea; therefore (c) defense against seabased strike systems now depends upon the deterrent effect of the SSBN force, and (d) direct efforts to counter Western strike forces will be reduced. We have already shown that the use of oborona does not imply the deterrent role of SSBN. But what McConnell has never explained is why the Soviet Union would perceive their SSBN force as providing a specific deterrent to attacks from the sea, since nuclear deterrence lacks that particular kind of symmetry.

However, the most persuasive reason for not accepting that the Soviet Union is deemphasizing the role of countering Polaris/Poseidon, is that the operational and material evidence argues the contrary to be the case.⁹ Moreover, Gorshkov explicitly refers to this task in his final chapter, when he describes the "basic mission of great power navies in a world-wide nuclear war." He lists three tasks and the second is "weakening (oslablenie) nuclear strikes by enemy naval forces from the ocean axes:" (70/2/2/8:131/2/2). This is a naval mission, in which context "weakening" can only imply direct action against the enemy weapon platform, or the weapon itself within a few moments of launch.

⁸Gorshkov goes to some lengths to show the disparity of effort invested by the two sides in the Battle of the Atlantic (72/11/25-28:100-102). He points to the advantages which lay with the West in having the time and facilities to build up both the ASW forces and their merchant tonnage, whereas Germany had to divert resources to her Eastern Front. He points to the very high ratio of ASW forces to U-Boats and notes that the diesel submarine was never driven from the sea. He then says "the question of the ratio of submarines to antisubmarine forces is of great interest even under present-day conditions," and poses a rhetorical question about the scale of escort forces which would be required to counter nuclear submarines. Of course he knows the scale of escort forces which face the Soviet Navy today, and how few they are by comparison to the ASW effort which was deployed in the Atlantic toward the end of the war.

⁹There are off-the-record statements by senior U.S. Defense Department officials to this effect. See also note 61 of the main paper.

The Soviet Union appears to be continuing to give high priority to this task, a conclusion which is supported by their public pronouncements. A recent example occurs in a Navy Day interview given by Gorshkov to Pravda in July 1974.¹⁰

"The navy has always had two main tasks . . . combat against the enemy fleet and operations against the shore. For long centuries the first of these tasks had priority. But, beginning with World War I the situation began to change. Now, if we are to judge by the developmental tendencies of navies and their weapons, the main naval mission (glavnaya missiya flota) is coming to be operations against targets on land.

"Therefore, defense (oborona) of the country against an attack from the sea is acquiring for our armed forces an even more important significance. This is again the result of the development of submarines, which in a series of navies are now coming forward as the main platform for strategic nuclear-missile weapons.

"Of course, the task of combating the enemy fleet is still with us . . . If required, Soviet navymen know how to solve both these tasks successfully."

Gorshkov's statement seems reasonably straightforward and may be clearer if we invert the first two paragraphs: "National defense against attack from the sea is acquiring an even more important significance, because the main mission of navies (in general) is to attack targets on land." This leaves undecided whether attacks against land targets is the main mission of the Soviet Navy (as well as navies in general). But it is clear that defense against such attacks (the threat of which lies mainly in submarines) has become even more important. That is, it has always been important, but is now even more so. It is also the task of the armed forces, and not just the navy.

But there remains the third paragraph, which implies that "combating the enemy fleet" is not part of "national defense (oborona) against attack from the sea." McConnell, partly on the basis of his particular interpretation of the usage of oborona, argues that "national defense" must therefore comprise attacks against land targets, or the threat of such attacks. However, this will only hold if one assumes that "countering Polaris/Poseidon" must necessarily come within the general task of "combating the enemy fleet."

It is true that in the past the destruction of carrier strike forces and the struggle against Polaris, together with other tasks were lumped under the general heading of "destroying the enemy's naval forces." But this is hardly sufficient reason for concluding that there has been a major change in the established priorities accorded to tasks. We have already shown that national oborona is not limited to the deterrent role of SSBN. We have the concrete evidence that the Soviets are continuing their efforts to develop some form of counter to Polaris/Poseidon. And finally there are at least two plausible explanations of why Gorshkov used this form of words:

a. His audience. This was a question and answer session in Pravda, for the benefit of a nonprofessional readership. Gorshkov is making the point that the main maritime threat now comes from Polaris/Poseidon submarines, rather than carrier task forces and other general purpose naval forces. Defense against Polaris/Poseidon is now the first priority, but of course, the navy must still be able to handle the rest of the "enemy fleet."

b. Redefinition of terms. On the one hand we have the possible indicators that the SSBN force is now considered as part of the SRF. And on the other, we have the evidence that defense against Polaris/Poseidon concerns the armed forces as a whole, and not just the Soviet Navy. Taken in conjunction with the evidence of a debate on roles and missions in 1970-73,¹¹ this may have resulted in a redefinition of terms, whereby Polaris/Poseidon is no longer classified as part of "the enemy's fleet."

There would therefore seem to be no reason why we should not take what Gorshkov says at face value, and conclude that measures to counter Polaris/Poseidon continue to receive high priority within the Soviet armed forces.

¹⁰ S. G. Gorshkov "Soviet National Sea Power," Pravda, July 28, 1974. Where I say "the main naval mission," McConnell says "the main mission of the Navy." The Russian word flot (navy) is never capitalized, and neither the grammar nor the context suggest that Gorshkov is talking about the Soviet Navy (as McConnell's rendering implies), as opposed to navies in general.

¹¹ John Erickson "Soviet Defense Policy and Naval Interests," Soviet Naval Policy, p. 60.

WITHHOLDING SOVIET SSBN

GENERAL BACKGROUND

The Soviet Union and the United States appear to have different operational requirements for their respective ballistic-missile submarine forces. The U.S.A.'s calculations are dominated by time-urgent targets and concern over being presented with a fait-accompli in Europe, and it is this plus various traditional assumptions, which require such a high proportion of Western units to be kept on missile-launch station. Soviet requirements would appear to be more simple. The deterrent mission relies on the certainty of retribution, not its speed; it is therefore only necessary to insure that the submarines escape the initial exchange and are able to deliver their missiles in due course. Similarly with the war-fighting mission; there are relatively few time-urgent targets which require submarines within range at the outbreak of war. To meet these requirements only a few units need be on station.

From the Soviet point of view, there would seem to be many advantages in keeping only a small proportion of the total SSBN force deployed. It allows a larger number of units to be at sea in times of tension; it requires only one crew per boat (a costly item); it reduces the maintenance load and increases operational availability; and it denies the enemy a full measure of his problem. But most important of all, it increases the security of the force. As the result of their lengthy (and at times embarrassing) exposure to U.S. antisubmarine defenses, Soviet naval leaders must be aware of the danger that, should it decide to do so, the United States would be able to take out all Soviet SSBN on distant patrol at one fell swoop. On the other hand, the chances of Soviet submarines reaching their firing positions safely will be greatly improved once war has begun. Opposing ASW forces and sensor systems are likely to have been put out of action at an early stage, and chances of success would be enhanced if the SSBN swamped the remaining Western defenses by deploying en masse. This surge deployment would apply mainly to the Yankee class, whereas the Delta would be able to cover targets within North America, from the relative security of the home-fleet areas.

In terms of the need to provide support and protection to Soviet SSBN, the Yankee's requirement would be considerably greater than the Delta's. Both classes would need a secure home-fleet area. But the Yankees would need the additional support required to insure their safe transit to within missile-firing range. The entry into service of the Delta class would not appreciably increase the requirement for defense of the home-fleet area. If anything, the Delta's capacity to fire directly at its target from the waters of coastal fjords (or if threatened with attack), might seem to lessen this particular requirement.

Since 1968, the SSBN force has been linked with the SRF in both the deterrent and war-fighting roles,¹² and would presumably participate in a common strike plan. The Yankee class began to enter operational service in 1969, during the last 2 years of the ICBM build-up.¹³ Because of the time-lag in the submarine reaching its firing position, it seems possible that some if not most of the Yankees have always been used to cover targets missed in the initial exchange, or have been held back in reserve to strike at targets of opportunity. Although all the Delta class have the capability to participate in the initial exchange, it seems quite probable that they would carry on the same kind of role as the Yankee; this is the more likely since they began to enter service after the numerical build-up of ICBM was complete. One can also assume that if no targets of opportunity presented themselves, and if there was no requirement to strike at targets missed by the SRF, then the SSBN would continue to be held back to see how things developed.

The Soviets may believe that the United States is planning to carry on the war after the initial exchange, by taking over some undamaged part of the world as a socioeconomic base. In that case, the Soviets would wish to hold back SSBN so as to deny the United States that option. Similarly, if they believe that the United States intends to withhold some Polaris, they would probably wish to hold back at least some of their own, on the off chance that there would be any targets left to strike.

The option of being withheld from the initial nuclear exchange is inherent in any weapon system which has a high chance of surviving that exchange. The problems of reconnaissance, targeting, command and control will be immense. But the way in which such systems are used will depend on the unforeseeable circumstances and requirements of the post-exchange period. It is unlikely that a military-political leadership would be prepared to tie their hands as to use or non-use, in advance.

¹² V. D. Sokolovskij "Voennaya Strategiya," Moscow 1968, pp. 235, 240-43.

¹³ See "Soviet Strategic Weapons Policy 1955-70," "Soviet Naval Policy," p. 494, table 27.1.

EVIDENCE FROM THE GORSHKOV SERIES

The preceding review seeks to establish the general operational context surrounding the employment of Soviet SSBN, and to clarify the kind of options and constraints which will have shaped Soviet decisions on this score. Elsewhere in this paper, we have noted that the Soviets do not separate out the idea of nuclear deterrence from the general concept of defense.¹⁴ The security of the homeland ultimately depends on the capability to repel (or at least absorb) any attack, and then go on to win the subsequent war.

Along with other weapon systems, submarine-launched ballistic missiles are seen as instruments both of deterrence and war-fighting.¹⁵ As part of the Soviet Union's military capability, they will contribute to determining the outcome of a war and the nature of any ensuing peace.

In Gorshkov's historical review of past wars, the great majority of discussion is concentrated on the conduct of naval operations in those wars. Apart from his analysis of operational trends, he places most emphasis on the capacity of navies to enable the actual conduct of war and on their contribution to the outcome. By comparison, and contrary to what McConnell suggests, Gorshkov devotes relatively little space to the influence of navies on the outcome of peace negotiations.

Going back to the 17th and 18th centuries, Gorshkov notes that in the war with Sweden (1703-21), the Russian Navy generally became "the most important factor." (72/3/25/4:16/1/1) He shows that the deployment of a squadron to the Mediterranean drew away Turkish ground forces from their northern front in 1770-74; that the fleet made up for army weakness on the Baltic front and cut off support to Turkish forces on the Black Sea in 1788; and that the navy helped again in 1828-29. In 1853-56, it was naval superiority which allowed Britain and France to reverse Russia's initial victory over Turkey and extend the war around Russia's borders; and in 1878 the lack of a Russian fleet allowed a British naval presence to deter the Tsar's armies from taking Constantinople. Gorshkov notes that naval victories in the war with Sweden (1713-21) and against Turkey (1770-74) were very important to the favorable peace treaties which followed. However, the navy's victories in the Aegean in 1807 had no effect on the Tilsit peace talks, when Napoleon forced Russia into an alliance.

In the Spanish-American war, Gorshkov emphasises how U.S. naval superiority allowed America to project its own military forces and prevent the reinforcement of Spanish forces. (72/4/16/4-5:30/1) In the Sino-Japanese war, it was naval power which enabled Japan to seize Taiwan and the Ryukus, to occupy Korea and to concentrate its forces at will on the mainland. (72/4/17/3-4:30/2-31/1) After the Russian defeat at Tsushima, their lack of a fleet meant that although ground force superiority could be built up again, it would not be possible to carry the war to Japan. (72/4/22/3:34/2/5). In World War I, Germany launched an unrestricted submarine campaign in an attempt to force Britain "to capitulate before the arrival of American troops in Europe," and as the single possibility "if not to achieve victory, at least to conclude an honorable peace" (72/5/17/3:44/2/2); the submarine campaign allowed "Germany to continue the war." (72/5/18/3:45/2/3) Meanwhile, naval operations in the Baltic and Black Sea had a "considerable effect" on the outcome of the war in those theaters (72/5/18/5, 19/4:45/2/5, 46/1/4). In the Russian Civil War, it was Western navies which enabled "constant support" of the enemy's forces, which would otherwise probably have given up. (72/6/17/4:58/2/1) In 1940, despite her ground and air superiority, Germany found "it was impossible to force (England) to surrender, without sufficient naval forces" (72/9/17/2:80/1/2) But German naval operations did enable the supply of Scandinavian iron ore. (72/9/16/6:79/2/1) Western naval operations in the Mediterranean disrupted Rommel's supply lines and enabled the landing of allied armies in North Africa and Italy. In the Pacific, the war was primarily naval, although U.S. naval superiority was not sufficient to force Japan to capitulate. Despite the continental nature of World War II, naval operations made a significant contribution to the outcome, particularly in secondary theaters, and the struggle for sea communications in the Atlantic and Pacific weakened the belligerents' economies.

This summary (which is not exhaustive) is sufficient to show that Gorshkov's dominant theme is that navies are important to the outcome of wars, and that one pays a price for naval inferiority or defeat. Wars are fought for political goals; the outcome of a war obviously affects the terms of peace, and Gorshkov mentions a few of these. But he only refers to three occasions when "naval forces in being" affected the course of peace negotiations, and two of these involved interference by third parties. The first was the Congress of Berlin (1873), when Britain was able to reverse many of the gains won by Russia in its war with Turkey. And the second was at

¹⁴ Ibid., pp. 486-7.

¹⁵ See note 10.

the end of the Sino-Japanese war (1895), when Russia, Germany, and France forced Japan to relinquish her claim to the Liaotung Peninsula by threatening her sea lines of communications. (72/4/17/9:31/1/3) The third occasion was the Treaty of Paris (1856) after the Crimean War, when Franco-British naval dominance of the Black Sea allowed them to dictate the terms of peace.

However, in none of these three cases is Gorshkov really talking of "navies in being" and in the two Black Sea cases he is referring to the ability of naval forces to project effective military power into distant sea areas. Meanwhile, the main thrust of his conclusions on these two wars with Turkey is that as soon as "the major capitalist powers of Europe" became concerned over Russia's attempts to gain egress to the Mediterranean, "the relative weakness of the Russian Navy was immediately apparent," and Russia was not only unable to profit from her victories on land, but was sometimes forced to concede defeat. (72/4/15/4-5:29/1/4) This is all part of the special emphasis which Gorshkov places on the Black Sea and the Mediterranean.¹⁶

How then does McConnell arrive at his conclusion that Gorshkov is announcing a new "doctrine of conserving forces" based on a "fleet-in-being" of SSBN? Partly from a selective reading of the historical analysis. Partly, it would seem, from the meaning he gives to oborona. But it also stems from what Gorshkov says about the Battle of Jutland; or rather, what Admiral Belli said about Jutland in 1964, with which Gorshkov is now meant to be in disagreement. Let us first look at what Gorshkov says about Jutland:

"The fact is, that in this engagement Germany had the goal of defeating the British fleet to insure freedom of action, in order to crush England by a subsequent unrestricted naval blockade, that is to achieve a sharp change in the course of the war to its advantage. A victory by the German forces would have permitted the Central powers to extract themselves from a naval blockade whose severe effect was already being felt by the German economy. But the German fleet did not achieve the goal it was set.

"Great Britain, on the other hand, was striving through this battle to retain her existing position on the seas and to strengthen the blockade operations against Germany. She achieved these goals." (72/5/16/2-3:43/2/2-3)

Gorshkov makes no reference to peace negotiations, which at this stage lay 30 months ahead. In fact, he chooses to emphasize the opposite aspect, pointing out that "the Battle of Jutland determined the immutability of the further course of the prolonged war and helped to keep it in its former channel." (72/5/16/4:43/2/4) Of course, in Western terms his analysis is fairly conventional, and it also fits well with the emphasis Gorshkov places on the struggle for sea communications. What, then is the nature of his disagreement with Belli, and how significant is it?

Gorshkov only mentions two opinions (held by "many analysts") with which he is in disagreement: (1) the fleet commanders (particularly the British) were indecisive and reluctant to risk major combattants in order to achieve complete victory; and (2) Jutland did not influence the outcome of the armed struggle. (72/5/15/11:43/1). However, McConnell claims that by implication, Gorshkov is overturning some much more fundamental criticisms, which have traditionally been leveled at Jutland by Soviet historians. He explains that:

"Admiral Belli has contended in 1964 that both the German and the British Navies had a 'doctrine of conserving forces' in World War I, their 'method' being that of the 'fleet-in-being'. German doctrine was only partly motivated by the desire 'to have an argument when conducting peace negotiations', but this was said to be the entire sum and substance of the British approach; the Admiralty sought to preserve its fleet 'as an important factor at the moment of concluding peace'. In Belli's view this 'politico-strategic' approach was wrong; military strategy should have been allowed to take its course".¹⁷

Because Gorshkov now disagrees with Belli on certain points, McConnell concludes that Gorshkov has espoused the alleged British doctrine of "conserving force in order to influence peace negotiations". But is McConnell justified in assuming that because Gorshkov disagrees with *certain* of Belli's judgments, Gorshkov must therefore hold *all* the ideas which Belli has criticized as fallacious? Belli accuses the British of thinking about the navy's role in future peace negotiations, whereas they should have concen-

¹⁶ The Black Sea and Mediterranean between them account for about 10 percent of the total text. This figure does not take account of their appearance in discussion of the naval operations in World Wars I and II.

¹⁷ This is a summary version of McConnell's full argument which appears in "Gorshkov's Doctrine of Coercive Naval Diplomacy in Both Peace and War", Admiral Gorshkov on "Navies in War and Peace", CRC 257, Center for Naval Analyses, Washington, September 1974, pp. 78-79.

trated on the battle and risked their ships to achieve a major victory. However, Gorshkov argues that the British were not thinking about future peace negotiations, but were concentrating on the immediate requirement to continue with the war along its established course. There was no point in risking their ships in search of a needless victory; the military-strategic requirement was to avoid defeat so that the fleet could continue with its existing wartime tasks.

There would seem to be every reason to take what Gorshkov says about Jutland at its face value. It fits in with the theme and structure of his argument, it makes good military sense, and he clarifies where he disagrees with established opinion. Significantly, he does not take issue with Belli's criticism of withholding weapons to influence the peace. There would seem to be absolutely no reason (in logic or in kreminology) for concluding that Gorshkov is in fact saying something quite different to what he writes; that he is not really talking about the major engagement at the midpoint of World War I, but is justifying a policy of withholding SSBN as a means of influencing peace negotiations.

CONCLUSIONS

The evidence in the Gorshkov series will not support the conclusion that Gorshkov is advancing a doctrinal rationalization for the political decision to withhold a substantial portion of Soviet SLBM in order to carry out "deterrence" in war, conduct intra-war bargaining and influence the peace talks at the end of the war.

Should war occur, the use of SLBM in some or all of these ways is of course quite likely. Gorshkov does not however approach the subject, even by analogy, and his arguments concentrate on demonstrating the importance of navies in providing military access, and the effect of naval operations on the outcome of war. Gorshkov shows no particular interest in the concept of a "fleet in being" and its potential influence either on the outcome of war, or on the subsequent peace negotiations. If he had wanted to present this case, his naval historians could have produced a clutch of examples to bolster his argument.

The SSBN force, together with the SRF, comprise the main striking power of the Soviet Union. Because of the system's characteristic it is likely that at least a proportion of SLBM will not be used in the initial exchange. SSBN are part of the Soviet Union's general war-fighting capability, and decisions on their use will depend on evolving operational requirements, the course and nature of the war, and the opportunities to influence its outcome. It is not clear why the Soviets should consider it necessary at this particular juncture to produce a convoluted doctrinal rationalization for a process that is inherent in the weapon system. But if they did think it necessary, one would then expect the message to be clearly articulated and readily discernible by its reader-ship.

MILITARY-POLITICAL TASKS OF THE SOVIET NAVY IN WAR AND PEACE

(By James M. McConnell¹)

Over the course of 1972-73 the monthly journal of the Soviet Navy, "The Naval Digest," published a series of 11 articles by its Commander-in-Chief, Fleet Admiral of the Soviet Union S. G. Gorshkov. For Gorshkov this was an unprecedented effort and it is understandable that the series should have aroused attention in the West. Unfortunately, Western analysts have not been able to come to a meeting of the minds either on the content of the articles or on the question of whether Gorshkov was lobbying or speaking authoritatively—and this too is understandable, since he does not make it easy for us to interpret him.

I myself take the position that Gorshkov is probably speaking authoritatively, that his work represents, not a doctrinal statement as such, but what the Soviets refer to as a "concrete expression of doctrine," i.e., a work rationalizing particular tenets of military doctrine that apply to the navy. In my opinion, the content of the Gorshkov series reflects a Soviet political decision to withhold a substantial portion of their submarine-launched ballistic missiles (SLBMs) from the initial strikes in order to carry out "deterrence" in war, conduct intrawar bargaining and influence the peace talks at the end of the war. This is essentially what the Russians call a "military-political task" in the "system of national defense" as contrasted with "military-strategic tasks" in the "combat system of the armed forces," i.e., it is a task directly imposed by the "political and military leadership of the state" embodied, presumably, in the Higher Defense Council, rather than by the subordinate "strategic leadership of the armed forces" embodied in the Higher or Main Military Council at the level of the armed forces.

The decision to withhold has apparently imposed new requirements on the navy to protect the ballistic-missile submarine (SSBN) and insure its combat viability. This task was not necessary earlier when naval missiles were apparently intended for the initial salvos and their carriers did not have to survive over a protracted period in a hostile environment to discharge their mission. Gorshkov especially stresses the protective value of aviation and surface ships, but he does not specify whether the resources for this support role are to come out of new allocations or reallocations from other missions. In this connection, it is interesting that, simultaneously with the apparent emergence of the withholding mission as the navy's main task, the Soviets are placing less doctrinal stress on its former main mission—that of "combating the enemy fleet." Since it seems unlikely that this would

¹The author is on the Staff of the Center for Naval Analyses. The ideas expressed in this paper are those of the author. The paper does not necessarily represent the views of either the Center for Naval Analyses, the U.S. Navy or any other sponsoring agency.

involve a downgrading of the antisurface ship component of that mission (especially since "getting the carrier" would promote the success of the withholding mission, because of the carrier's antisubmarine warfare (ASW) potential), the lessened stress on combating the enemy fleet suggests a shift in priorities from the anti-SSBN to the pro-SSBN mission. In contrast to the past, when optimistic pronouncements were made on the state of the art in ASW, Gorshkov stresses the "great survivability" of the SSBN in comparison with land-based launch facilities, especially if the submarine is given protection. Since no invidious distinctions are made between Western and Soviet SSBNs in this regard, the "great survivability" theme would seem to serve a dual purpose. On the one hand, it rationalizes the decision to withdraw resources from the task of combating Poseidon in order to support the withholding mission; on the other hand, it affirms the viability of the Soviet SSBN in its new military-political task of withholding.

While one can only speculate in these matters, it could be that the new Soviet "doctrine of conserving forces," with its new "method" of the "fleet-in-being" for SSBNs, was prompted by some or all of the following developments:

- the appearance in the Soviet operational inventory of the Delta-class SSBN equipped with the SS-N-8 SLBM, which has sufficient range to hit the United States from protected home waters;

- Soviet development of the SS-N-13 missile; the retrofitting of some Yankee class tubes with these missiles would provide a formidable capability against surface ASW, assisting SSBNs in the initial "breakout" and promoting combat stability on the open ocean;

- Soviet recognition of the lack of a real technological perspective for combating SSBNs in the foreseeable future.

THE QUESTION OF AUTHORITATIVENESS

I have stated that, in my opinion, Gorshkov's effort represented a "concrete expression of military doctrine." Let me clarify what I mean by that and try to demonstrate its correctness. Soviet military doctrine is a difficult matter for specialists. As a nonspecialist, I shall simply report what the Russians themselves say on this head—having no reason to doubt that they mean what they say—and leave to others the task of higher criticism.

THE RESPONSIBILITY FOR MILITARY DOCTRINE

The first thing to be noted is that Soviet military doctrine is a "military doctrine of the state,"² the "result of a complex process of the development of state ideas in the sphere of resolving defense tasks and military development." It is not, at least formally, a doctrine of the party, although it is stated to be in "complete accord" with party policy,³ is actually worked out on the basis of "instructions"

²Col. A. Babakov, "On the New Stage of Development of the USSR's Armed Forces," *Krasnaya zvezda* (hereafter referred to as KZ), May 8, 1964; Col. P. M. Derevyanko, "A Few Special Features of the Modern Revolution in Military Affairs," in P. M. Derevyanko (compiler), *Problemy revolyutsii v voennom dele: sbornik statey* (Moscow, 1965), 113.

³Gen.-Lt. I. Zav'yalov, "The Creative Character of Soviet Military Doctrine," KZ, Apr. 19, 1973, p. 2.

from the Central Committee as well as the Soviet Government,⁴ and the policy of the party and the government "permeates the entire content" of doctrine.⁵

Second, doctrine is not a lower-level preliminary to policy,⁶ actually, the "military policy of the state" is said to find its "practical embodiment" in military doctrine,⁷ the latter constituting

the political line of the Party and Soviet state in the military sphere. It is an expression of state military policy and a directive of political strategy. . . . It expresses the essence of military policy.⁸

Indeed, the connection between military policy and military doctrine is so intimate that the latter is referred to, though rarely, as "military-policy doctrine" (literally "military-political doctrine").⁹

Third, Soviet sources almost invariably attribute the formulation of doctrine to either the "political and military leadership of the state" or simply the "political leadership of the state."¹⁰ Actually there is no difference between these expressions. To the Soviets the two functions are "inseparable";¹¹ the state political leadership *is* the state political and military leadership. The error that has to be avoided, though understandable, is the conclusion that the "state military leadership" in this formula refers to the senior military professionals (the voenachal'niki of the armed forces).¹²

⁴ Bol'shaya Sovetskaya entsiklopediya (3rd ed., Moscow, 1970--). V, 205; R. Ya. Malinovskiy, *Bditel' no stoyat' na strazhe mira* (Moscow, 1962), 17.

⁵ Col. A. A. Strokov in A. A. Strokov (ed.), *Istoriya voennogo iskusstva* (Moscow, 1966), 599.

⁶ For a different view, see Matthew P. Gallagher, "The Military Role in Soviet Decision-Making," in Michael McGwire, Ken Booth and John McDonnell (eds.), *Soviet Naval Policy: Objectives and Constraints* (N.Y., Wash., London, 1975), 55-56.

⁷ S. N. Kozlov in Gen.-Col. A. S. Zheltov, Lt.-Col. T. R. Kondratkov and Col. E. A. Khomenko (eds.), *Metodologicheskie problemy voennoy teorii i praktiki* (2nd ed., Moscow, 1969), 284, 289.

⁸ Col. P. A. Sidorov, "Marxist-Leninist Military Theory," in Gen.-Maj. S. N. Kozlov (compiler), *Spravochnik ofitsera* (Moscow, 1971), 75-76.

⁹ Georgi Arbatov, "The War of Ideas in Contemporary International Relations" (Moscow, 1973), 58.

¹⁰ Gen.-Lts. S. N. Krasil'nikov and A. E. Yakovlev, *Slovar' osnovnykh voennykh terminov* (Moscow, 1965), 41; Gen.-Maj. N. Ya. Sushko and Lt.-Col. T. R. Kondratkov, *Metodologicheskie problemy voennoy teorii i praktiki* (Moscow, 1966), 85; Strokov, op. cit., 598; Gen.-Lt. I. Zav'yalov, "On Soviet Military Doctrine," *KZ*, Mar. 30, 1967; S. N. Kozlov in Zheltov, Kondratkov and Khomenko (eds.), op. cit., 284; Malinovskiy, op. cit., 16; Col. L. Belousov, "A Conference on Soviet Military Doctrine," *Voenno-istoricheskii zhurnal* (hereafter cited as *VIZ*), No. 10, 1963, 122; Gen.-Col. N. A. Lomov, *Sovetskaya voennaya doctrine* (Moscow, 1963), 5; S. N. Kozlov, M. V. Smirnov, I. S. Baz' and P. A. Sidorov, *O sovetskoy voennoy nauke* (2nd ed., Moscow, 1964), 379; V. D. Sokolovskiy (ed.), *Voennaya strategiya* (3rd ed., Moscow, 1968), 55; Sidorov in Kozlov (compiler), *Spravochnik ofitsera*, 74; Bol'shaya Sovetskaya entsiklopediya (3rd ed.), V, 205; A. Grechko, "The CPSU and the Armed Forces," *Kommunist*, No. 4, 1971, p. 52.

¹¹ Col. A. A. Strokov in Gen.-Col. A. S. Zheltov (ed.), *V. I. Lenin i Sovetskie Vooruzhennyye Sily* (Moscow, 1967), 207.

¹² The error seems to be primarily responsible for the theory that military doctrine is actually some kind of "charter" for the military, a lower-level point of departure for the bargaining process between the political and the military establishments that will eventually issue in military policy but is not in itself an authoritative guide to policy. Doctrine cannot be decisive in the scheme of things, according to this theory, mainly because it is the joint product of the political leadership and the senior military professionals, who would not be allowed to participate in the actual formulation of policy. The reasoning here seems impeccable, only the initial premises being at fault. It is ironic that a theory which ends by concluding a wide divergence between Soviet and Western concepts of military doctrine should have begun with the assumption of an identity in Anglo-Saxon and Russian expression.

The theory is also grounded on an alleged "permissiveness" of Soviet military doctrine, as contrasted with the necessary precision and definiteness that would be required of military policy. I must confess being taken aback by the charge of "permissiveness." Ordinarily, when we encounter doctrinal tenets that say a war can be short or long, conventional or nuclear, we speak of this as a "flexible response" rather than a "permissive" doctrine. In other words, such a doctrine implies that "everything goes" rather than "anything goes." I say this without prejudice to the question of whether Soviet doctrinal tenets are precisely as stated in the initial postulates of the theory. In my opinion, the Soviets do not have a flexible-response doctrine in the Western sense, but that would have to be the subject of a separate discussion. Certainly I see no convincing evidence from the Gorshkov series itself that the Soviets have committed themselves to protracted conventional wars at sea between the great powers; Gorshkov seems to deal only with general nuclear wars and "local wars" in defense of "state interests." In large-scale conflicts, the only limitations appear to be within the framework of general nuclear war itself (the withholding strategy for SSBNs).

Historically, the Soviet national political and military leadership has been embodied in a "single military-policy organ" (literally "military-political organ") and this is presumably why it is alternatively referred to as the "state military-policy leadership."¹³ Since these military-policy organs have traditionally been responsible for "leadership of national defense (oborona strany) and the armed forces,"¹⁴ they have been consistently designated as "defense" councils or committees—the Council for Worker-Peasant Defense of 1918–20, the Council for Labor and Defense of 1920–37, the Defense Committee of 1937–41, the State Defense Committee of 1941–45, and today presumably the Defense Committee¹⁵ or Higher Defense Council, said to be composed of Brezhnev, Kosygin, Podgornyy, Ustinov, and Grechko,¹⁶ in other words, the Party General Secretary, the premier, the head of state, the Central Committee secretary in charge of military-technical affairs, and the representative of the war department. This composition is in line with tradition as far as the war department is concerned. Historically the national or state political and military leadership has consisted, at most, of a single working representative from the armed forces and he has not always been a professional soldier (e.g., Trotsky).¹⁷ The military leadership of the state, in fact, seems to be nothing more than a state political leadership engaged with high-level military problems.¹⁸

¹³ A. Grechko, "The Triumph of Leninist Ideas on the Defense of the Socialist Fatherland," *Kommunist Vooruzhennykh Sil* (hereafter cited as KVS), No. 20, 1967, p. 37; A. A. Grechko, *Vooruzhennyye Sily Sovetskogo gosudarstva* (Moscow, 1974), 32–35, 81; N. N. Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka (Moscow, 1971), 118; Sokolovskiy, op. cit., 414–426; Col. N. M. Grechanyuk in Adm. S. E. Zakharov (ed.), *Istoriya voenno-morskogo iskustva* (Moscow, 1969), 142; S. V. Lipitskiy in Strokov (ed.), op. cit., 246, 281; Col. B. Zverev, "The Importance of Lenin's Ideas on the Defense of Socialism," *Morskoy sbornik* (hereafter referred to as MS), No. 4, 1975, p. 10; Gen.-Maj. V. Zemskov, "An Important Factor for Victory in War," *KZ*, 5 Jan 1967.

¹⁴ A. A. Grechko (Chairman of the Editorial Commission), *Istoriya vtoroy mirovoy voyny 1939–1945* (Six vols., Moscow, 1973–), I, 237; Azovtsev, op. cit., 111, 252; N. Azovtsev, "V. I. Lenin at the Head of Soviet State Defense," *VIZ*, No. 4, 1960, p. 22; N. I. Shatagin and I. P. Prusanov, *Sovetskaya Armiya—armiya novogo tipa* (Moscow, 1957), 33; Sokolovskiy, op. cit., 420, 421; *Boi'shaya Sovetskaya entsiklopediya* (2nd ed.), XXXIX, 479 and (3rd ed.), VII, 171; Col. I. I. Vlasov, V. I. Lenin i stroitel'stvo Sovetskoy Armii (Moscow, 1958), 181; K. E. Voroshilov, *Stat'i i rechi* (Moscow, 1937), 196; Lt.-Col. Yu. I. Korablev and Col. M. I. Loginov (eds.), *KPSS i stroitel'stvo Vooruzhennykh Sil SSSR, 1918–iyun' 1941* (Moscow, 1959), 242; M. V. Zakharov (ed.), *50 let Vooruzhennykh Sil SSSR* (Moscow, 1968), 198–199, 211, 234, 569; K. U. Chernenko and N. I. Savinkin (compilers), *KPSS o Vooruzhennykh Silakh Sovetskogo Soyuza: dokumenty 1917–1968* (Moscow, 1969), 277; Gen.-Maj. N. Pankratov and Capt. 1st Rank V. Konovalov, "Imperialism—the Guilty Party in Unleashing the Second World War," *VIZ*, No. 10, 1974, p. 104; Krasil'nikov and Yakovlev, op. cit., 66. See also the articles by Col. Yu. I. Korablev and V. A. Matsulenko in Gen.-Col. A. S. Zheltov (ed.), *V. I. Lenin i Sovetskie Vooruzhennyye Sily*, 139, 435.

¹⁵ Statement of David E. Mark in Joint Economic Committee, Congress of U.S., *The Military Budget and National Economic Priorities*, Part 3 (Wash., GPO, 1969), 956.

¹⁶ Raymond L. Garthoff, "SALT and the Soviet Military," *Problems of Communism*, XXIV, No. 1 (Jan.-Feb), 1975, p. 29. It has been reported that Krushchev made the decision to withdraw Soviet offensive weapons from Cuba in 1962 in consultation apparently with a small group of colleagues—Mikoyan, Kosygin, Suslov, Brezhnev, Kozlov—constituting a "Soviet National Security Council." Thus we would have the Party First Secretary and his two main deputies (Khrushchev, Kozlov, Suslov), the Premier and his two first deputies (Krushchev, Mikoyan, Kosygin) and the Chairman of the Supreme Soviet Presidium (Brezhnev). The absence of a representative from the war department is conspicuous. Cf. Committee on Government Operations, U.S. Senate, *Staffing Procedures and Problems in the Soviet Union* (Wash., GPO, 1968), 25.

¹⁷ V. K. Vysotskiy, A. S. Georgievskiy et al., *Tyl Sovetskoy Armii* (Moscow, 1968), 9, 111; Zakharov (ed.), *50 let Vooruzhennykh Sil SSSR*, 56–57, 199, 456; Hans Jonas, "The Organization of Economic Life" in Gerhard Debbert (ed.), *Soviet Economics* (London, 1933), 27; Chernenko and Savinkin (compilers), op. cit., 277; Gen. of the Army A. Epishev, "The Leninist Party—Organizer of Victory in the Great Patriotic War," *Kommunist*, No. 2, 1975, 167; Gen. of the Army A. Khrolev, "Stabilization of the Strategic Rear in the Great Patriotic War," *VIZ*, No. 6, 1961, pp. 66, 67; *Boi'shaya Sovetskaya entsiklopediya* (2nd ed.) V, 23, VI, 260, VII, 163, IX, 130, XIX, 283, XXVI, 146, XXVII, 431, XXVIII, 154, XXXIX, 477.

¹⁸ M. V. Zakharov, *O nauchnom podkhode k rukovodstvu voyskami* (Moscow, 1967), 23; Col. A. A. Strokov in A. S. Zheltov (ed.), op. cit., 205; S. V. Lipitskiy in Strokov (ed.), op. cit., 246; Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka, 112, 188, 340.

While the defense councils and committees are also referred to as "higher organs of military leadership,"¹⁹ this is not their specific designation; and they are definitely not to be confused with the other "higher organs of military leadership" at the level of the armed forces²⁰ that have traditionally embodied the "strategic leadership of the armed forces."²¹ Whereas the "military-policy organ" at the state level carries out "leadership of national defense and the armed forces," the subordinate strategic leadership at the level of the armed forces carries out "direct leadership of the armed forces."²² And whereas the military-political organs have consistently been designated as "defense" councils or committees, the organs embodying the strategic leadership have always been designated as "military councils" or "commands"—the Higher Military Council of the Republic (1918), the Revolutionary Military Council of the Republic (1918–23), the Revolutionary Military Council of the U.S.S.R. (1923–34), the Military Council under (pri) the People's Commissar of Defense (1934–38), the Main Military Councils of the Red Army and Navy (1938–41), the Stavka of the Supreme High Command (1941–45),²³ the Higher Military Council attached (pri) to the People's Commissariat (Ministry) of the Armed Forces (1946–50), and the Higher Military Council attached to the Council of Ministers (1950 at least to the early 1960's).

This latter council presumably either continues to exist under that name or it has been redesignated, perhaps as the "Main Military Council," in existence as early as 1962.²⁴ The composition of this

¹⁹ Zakharov (ed.), 50 let Vooruzhennykh Sil SSSR, 198–199, 211, 477, 569; Sokolovskiy, op. cit., 414–426.

²⁰ Col. Yu. P. Petrov, *Partiynoe stroitel'stvo v Sovetskoy Armii i Flota* (Moscow, 1964), 38, 287, 339; Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka, 128; N. F. Kuz'min, V. I. Lenin vo glave oborony Sovetskoy strany, 198–1920 gg. (Moscow, 1958), 99; Zakharov (ed.), 50 let Vooruzhennykh Sil SSSR, 52.

²¹ Petrov, op. cit., 339; Interview with Marshal of the Soviet Union G. I. Zhukov, "Military Commanders Recall. . .," VIZ, No. 5, 1970, p. 52; Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka, 253; Shatagin and Prusanov, op. cit., 66; A. Grechko, "The Great Victory," VIZ, No. 5, 1970, p. 6; Sokolovskiy, op. cit., 404, 426–428, 431; V. Kulikov, "Soviet Military Art in the Years of the Great Patriotic War," *Kommunist*, No. 4, 1975, p. 84, 85; P. Batitskiy, "The National Air Defense Troops," VIZ, No. 4, 1975, p. 44; E. Maltsev, "The CPSU—Inspirer and Organizer of the Soviet People's Victory in the Great Patriotic War," *ibid.*, 12; Zakharov (ed.), 50 let Vooruzhennykh Sil SSSR, 267; Marshal of the Soviet Union I. Kh. Bagramyan, Gen. of the Army S. P. Ivanov et al. (eds.), *Istoriya voyn i voennogo iskusstva* (Moscow, 1970), 141, 401–402, 404; I. B. Berkhin, *Voennaya reforma v SSSR, 1924–1925 gg.* (Moscow, 1958), 152; A. Epishev, "The Leninist Party—Organizer of Victory in the Great Patriotic War," *Kommunist*, No. 2, 1975, p. 72.

²² Krasil'nikov and Yakovlev, op. cit., 214.

²³ Actually, first the Stavka of the High Command of the Armed Forces (created June 23, 1941), then the Stavka of the Supreme Command of the Armed Forces (July 10, 1941) and only then the Stavka of the Supreme High Command of the Armed Forces (August 8, 1941).

²⁴ Col. Yu. P. Petrov, *Stroitel'stvo politorganov, partiynikh i komsomol'skikh organizatsii Armii i Flota 1918–1968* (Moscow, 1968), 507; Col. Yu. I. Korablev in Zheltov (ed.), V. I. Lenin i Sovetskie Vooruzhennye Sily, 148. Some discussions have treated the Higher Defense Council as the successor of the Higher Military Council but this seems unlikely to me. There is, first, the matter of nomenclature—"defense" as against "military." Second, there is the matter of the composition of these councils, which are at variance in the weighting of Party, state and military-professional representation. Third, there is the matter of the language used apparently in connection with the Higher Military Council on the occasion of Zhukov's ouster in 1957. Zhukov, who was charged with wanting to "liquidate" the Higher Military Council, was said to have violated Leninist Party principles of "leadership of the armed forces." Throughout the entire Zhukov affair there are no references to the "political and military leadership of the state" or to the violation of principles of "Party leadership of national defense." Zhukov wanted to liquidate Party control over "the Army and Navy," not over "national defense," over the "development of the armed forces," not over "defense development" or "military development." The indictment deals specifically with "the leadership of the armed forces," which was involved with strengthening the "combat readiness," "combat strength" and "combat capabilities of the armed forces." See Petrov, *Partiynoe stroitel'stvo v Sovetskoy Armii i Flote*, 460–463, 467; V. A. Zubarev and P. A. Sidorov (editors-compilers), *V pomoshch' ofitseram, izuchayushchim marksistko-leninskuyu teoriyu: sbornik statey* (Moscow, 1959), 4, 5, 12, 14, 18, 68, 69, 109; Korablev and Loginov (eds.), op. cit., 27, 444.

council is unknown to me. However, if precedent is a reliable guide,²⁵ it presumably consists of senior military professionals (at least the Minister of Defense, the Chief of the General Staff and the head of the Warsaw Pact forces), the Chief of the Main Political Administration of the Soviet Army and Navy and senior representatives of the party and state administrations (Brezhnev at least and possibly others). In Stalin's day (after 1941) and in Khrushchev's day (probably after 1957), the Party *vozhd'* chaired these councils and commands apparently on the strength of this position as Supreme High Commander, but with this post now presumably vacant, one might expect a reversion to the earlier tradition of ministerial chairmanship (Grechko).

The distinction between the Higher *Defense* Council and the Higher or Main *Military* Council can perhaps be broadly illuminated by examining Soviet discussions of the U.S. institutional setup. In the Soviet view, the "U.S. political and military leadership" is embodied in the "National Security Council headed by the President," which is the "higher military-political organ of government" and, as such, responsible for formulating "military policy and military doctrine" (also referred to as "political and military doctrine" and "military-political doctrine"). On the other hand, "leadership of the U.S. armed forces" is carried out by "the Pentagon." More specifically, "in peacetime" the Defense Department "directly leads the armed forces," while "in wartime the Joint Chiefs of Staff . . . constitute the higher organ of strategic leadership of the armed forces."²⁶

MILITARY DOCTRINE AND MILITARY SCIENCE

In discussions of military affairs, Soviet commentators have two choices: they can speak in the framework of military doctrine or in the framework of military science. The major differences between the two lie in degree of authoritativeness, scope of subject-matter coverage and temporal focus. In treating the Gorshkov series—or any other Soviet military work—we have to keep these three areas of difference in mind.

²⁵ Petrov, *Partiynoe stroitel'stvo v Sovetskoy Armii i Flote*, 165, 306; "The Report of M. V. Frunze 'On the Results of Reorganizing the Red Army,'" *VIZ*, No. 6, 1966, p. 69; Petrov, *Stroitel'stvo politorganov, partiynikh i komsol'skikh organizatsii Armii i Flota*, 531; Korablev and Loginov (eds), op. cit., 399–400; P. N. Pospelov (Chairman of Editorial Commission), *Istoriya Velikoy Otechestvennoy voyny Sovetskogo Soyuza 1941–1945* (six vols., Moscow, 1960–65), I, 97, 489; Zakharov (ed.), *50 let Vooruzhennykh Sil SSSR*, 199, 234, 256; Gen.-Maj. N. Pankratov and Col. A. Popov, "Inspirer and Organizer of the Soviet People's Victory," *KVS*, No. 9, 1975.

²⁶ Zemskov, op. cit.; Gen.-Maj. M. A. Mil'shtein, Preface to the Russian Edition of Maxwell Taylor, *Nenadzhnaya strategiya* (Moscow, 1961), 6–7; N. S. Solodovnik, "Changes in U.S. Military Policy and Military Doctrine at the End of the Sixties and Beginning of the Seventies," in V. M. Kulish, M. S. Solodovnik et al., *Voennaya sila i mezhdunarodnye otnosheniya* (Moscow, 1972), 60; A. M. Dudin and Yu. N. Listvinov, "Contradictions of the New Stage of the Arms Race," *ibid.*, 105; Cols. V. I. Ezhakov and S. T. Mazhorov in Strokov (ed.), op. cit., 498; Sokolovskiy, op. cit., 33; 411–412; A. A. Gromyko, "Present Trends in U.S. Foreign Policy," *SShA*, No. 4, 1972, tr. by Joint Publications Research Service, JPRS 55986, 15 May 72, p. 65; Speech of Comrade A. A. Grechko, XXIV s"ezd Kommunisticheskoy Partii Sovetskogo Soyuza, 30 Marta—9 Aprelya 1971 goda: stenograficheskiy otchet (Moscow, 1971), I, 347; Gen.-Maj. I. D. Dement'ev, "The Armed Forces of the Imperialist States," in Kozlov (compiler), *Spravochnik ofitsera*, 238.

Military science represents a preliminary stage in the formulation of doctrine. It consists of "military-theoretical" data, worked up and filtered primarily by the strategic leadership and subordinate organs of the armed forces. Military science can do no more than make "recommendations" to the military-political leadership, which the latter may or may not accept as part of doctrine. As a consequence, military science can be said to occupy a subordinate position with respect to doctrine.²⁷ "By their very nature, the data of military science do not take the form of directives, much less officially proclaimed state ideas."²⁸ Doctrine, however, has "the force of a state law, deviation from which is inadmissible."²⁹ In the system of "military theories" that make up military science, "there can be several different (and even opposing) points of view and various scientific notions and original hypotheses that are not selected by doctrine for practical application and thus do not acquire the character of official views on military questions." On the other hand, "there cannot be two military doctrines in the state;" there must be a single (edinaya) doctrine for the entire state and all branches of its armed forces. And whereas "freedom of criticism," a "clash of views" and a "struggle of opinions" are inherent to science,³⁰ after doctrine is promulgated to the troops one finds only "unity of views" (edinstvo vzglyadov) and "united views" (edinye vzglyady).³¹ This particular terminology seems to be one of the tell-tale indicators of doctrine.

Science and doctrine also differ in the scope of subject matter coverage. Military doctrine, the Soviets tell us, has two aspects—a political, military-political or socio-political side and a military, technical or military-technical side, the former being "the main and determining side." With military science it is just the other way around: "the military-technical content prevails."³² For one thing, this means that doctrine, in contradistinction to military science, deals with military diplomacy, the use of the military establishment on behalf of the peacetime political struggle, as well as on behalf of the armed struggle

²⁷ Azovtsev, V. I. *Lenin i Sovetskaya voennaya nauka*, 228, 248, 278; Grechko (ed.), *Istoriya vtoroy mirovoy voyny*, II, 171; Scott, op. cit., 66; Sidorov in Kozlov (compiler), *Spravochnik ofitsera*, 76; Gen.-Lt. of Tank Troops G. Zavizion and Lt.-Col. Yu. Kirshin, "Soviet Military Science: its Social Role and Function," KVS, No. 17, 1972, pp. 12-14; A. Grechko, "The CPSU and the Armed Forces," *Kommunist*, No. 4, 1971, p. 46; Sokolovskiy, op. cit., 57, 290.

²⁸ Remarks of Col. V. V. Larinov, as reported in Belousov, op. cit., 123.

²⁹ Col. A. Babakov, "The Unity of Science and Policy in the Military Activity of the CPSU," KVS, No. 19, 1968, p. 66; Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 383, 391; Azovtsev, V. I. *Lenin i Sovetskaya voennaya nauka*, 286; Malinovskiy, *Bditel'no stayat' na strazhe mira*, 17.

³⁰ Sidorov in Kozlov (compiler), *Spravochnik ofitsera*, 77; Kozlov Smirnov et al., *O Sovetskoy voennoy nauke*, 387, 396; Azovtsev, V. I. *Lenin i Sovetskaya voennaya nauka*, 284; Sushko and Kondratkov, op. cit., 95; Kozlov in Zheltov (ed.), V. I. *Lenin i Sovetskoye Vooruzhennyye Sily*, 294-295; Strokov in Strokov (ed.), op. cit., 599; Col. V. A. Sekistrov in *ibid.*, 327, footnote.

³¹ The terminology originated in the discussions over "unitive (edinaya) military doctrine" in the tsarist period before and during World War I and became fixed in the Soviet military lexicon through Frunze's contributions to the military debates of 1921-22. See Gen.-Maj. P. Zhilin, "The Discussion over Unitive Military Doctrine," VIZ, No. 5, 1961, pp. 61ff; M. V. Frunze, *Izbrannyye proizvedeniya* (Moscow, 1957), II, 3, 36, also 5, 7, 8, 35, 53, 54, 57, 58, 61, 92, 93, 163; S. I. Gusev, *Grazhdanskaya voyna i Krasnaya armiya* (Moscow, Leningrad, 1925), 96, 132; Belousov, op. cit., 126; Capt. 1st Rank B. Demidov, "The Decisive Condition for the Creative Development of Soviet Military Science," KVS, No. 9, 1962, p. 22; Gen.-Col. N. Lomov, "On Soviet Military Doctrine," KVS, No. 10, 1962, p. 12; Col. I. Sidel'nikov, "On Soviet Military Doctrine," KZ, 11 May 1962, p. 2; Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 383, 391; S. S. Biryuzov, "New Steps in Developing the Armed Forces and Tasks of Training and Instructing Troops," in Derevyanko, op. cit., 27; Sushko and Kondratkov, op. cit., 90; Col. P. S. Smirnov in Zheltov (ed.), V. I. *Lenin i Sovetskoye Vooruzhennyye Sily*, 113; Col. A. M. Iovlev in *ibid.*, 286; Kozlov in Zheltov, Kondratkov and Khomenko (eds.), op. cit., 290, 294-295; Azovtsev, V. I. *Lenin i Sovetskaya voennaya nauka*, 286; Sidorov in Kozlov (compiler), *Spravochnik ofitsera*, 73, 75-77; S. V. Lipitskiy, *Voennaya deyatel'nost' TsK RKP* (b) 1917-20 (Moscow, 1973), p. 8; Grechko, *Vooruzhennyye Sily Sovetskogo gosudarstva*, 296-297.

³² Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 2-6, 386.

in war.³³ Post-Stalinist doctrine takes the position that "military clashes are not inevitable" and that the task is one of "preserving peace" and "curbing the war-mongers," in addition to "the armed defense (zashchita) of the socialist fatherland."³⁴ The Soviets have a special formula for this—and it is a very important formula for our purposes. They say that the leading place in doctrine is taken up with a broad circle of state questions bearing on the problem of "war and peace."³⁵

There is also a difference between science and doctrine in their temporal orientation. Military science deals with past, present and future.³⁶ One of its most important components is military-historical science, which investigates the history of wars and the military art, as well as the history of military science itself.³⁷ However, "military science cannot simply generalize from the experience of past wars. It must generalize from the practice of the present and look ahead," engage in "a fearless forecasting of the future,"³⁸ not even stopping, as one writer put it, at science fiction.³⁹ Doctrine, on the other hand, is said to have a "practical" orientation, intervening only when thought has to be suspended in favor of action. It does not investigate the past or project the future; it "exists, above all, for the present and very near future," determining the tasks of military development for "some comparatively limited period."⁴⁰ Because of this short-term focus, doctrine eventually begins to "lag behind life." However, in the meantime military science, in actively influencing the development of the means of the armed struggle (military-technical science) and at the same time determining the changes in the methods of waging the armed struggle that would accompany the projected changes in weaponry (theory of military art), has been "paving the way for practice."⁴¹

CONCRETE EXPRESSIONS OF DOCTRINE

According to Soviet writers, the tasks of military science are not exhausted by the submission of "recommendations" for doctrine. Since doctrine is cast in abstract terms, science has the chance to influence directly the military-development and military-technical policies that flesh out doctrine's commands. The Soviets frequently refer to "concrete expressions of doctrine;" these not only include party and

³³ For a different view, see Geoffrey Jukes, "The Military Approach to Deterrence and Defense," in McGwire, Booth, McDonnell, op. cit., 481.

³⁴ N. Kuz'min, "The Armed Forces of the Land of the Soviets," *Pravda*, 29 May 1974; *Bol'shaya Sovetskaya entsiklopediya* (3d ed.), V, 205; Malinovskiy, *Bditel'no stoyat' na strazhe mira*, 19, 20.

³⁵ Lomov in KVS, No. 10, 1962, p. 11; Col. V. Larionov, "The Political Side of Soviet Military Doctrine," KVS, No. 2, 1968, pp. 11, 12; *Bol'shaya Sovetskaya entsiklopediya* (3d ed.), V, 205; Lt.-Col. V. Zubarev in Zubarev and Sidorov (eds.), op. cit., 147.

³⁶ *Bol'shaya Sovetskaya entsiklopediya* (3d ed.), V, 209.

³⁷ Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 266, 398.

³⁸ Col. N. Azovtsev, "V. I. Lenin—Founder of Soviet Military Science," KVS, No. 18, 1968, pp. 18f; Stokov in Zheltov (ed.), V. I. Lenin i Sovetskie Vooruzhennye Sily, 183; Zavizion and Kirshin, op. cit., 11; Grechko (ed.), *Istoriya vtoroy mirovoy voyny*, II, 22–23.

³⁹ Belousov, op. cit., 123; Col. V. Konoplev, "Military History and Scientific Forecasting," KVS, No. 12, 1969, p. 10.

⁴⁰ Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 387; Sidorov in Kozlov (compiler), *Spravochnik ofitsera*, 77. For a different view of the temporal focus of military doctrine, see Robert Weinland, "Analysis of Adm. Gorshkov's 'Navies in War and Peace'" in McGwire, Booth, McDonnell, op. cit., 568–569.

⁴¹ Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka, 284; A. Lagovskiy, *Strategiya i ekonomika* (2d ed., Moscow, 1961), 131, 133; Sokolovskiy, op. cit., 331.

government decrees on strengthening national defense and organizing and supplying the troops but also regulations, manuals and directives of the armed forces on troop training and conducting combat operations.⁴²

Another most interesting category of "concrete expressions of doctrine" from our standpoint consists of "military-theoretical works that substantiate particular tenets of doctrine."⁴³ At this point military science, having done relatively free pioneering work for doctrine, now finds itself directly determined by doctrine, is put directly into the service of doctrine. "The dialectics of this interaction is reflected in the fact that military science prepares the first stage of military doctrine, then its conclusions are fixed in doctrine, and after that military science occupies itself with a deeper grounding of the basic demands and tenets of doctrine."⁴⁴

Like doctrine itself, these "concrete expressions of doctrine" also seem to have an authoritative character. This is obvious in the case of party and government decrees. The regulations and manuals put out by the organs of military leadership, too, are said to be "obligatory for all personnel of the armed forces;" they "have the force of a state law."⁴⁵

One must also apparently accept as gospel for the armed forces the military-theoretical works which "substantiate" this or that tenet of doctrine. In early 1963, for example, Admiral Gorshkov stated that, "proceeding from the tenets of our military doctrine, Soviet naval thought has developed united views (*edinye vzglyady*) on the role and place of the navy in nuclear-missile war. . . ."⁴⁶ Three years later he stated that, "proceeding from the tenets of Soviet military doctrine that are in the form of general principles, united views have been developed on the tasks of the fleet in modern war and the methods of conducting naval operations."⁴⁷ In other words, military-theoretical works that have doctrine as their substantial foundation also appear to be able to command a "unity of views."

These quotations are timely, because if one wanted to select a concrete example of a "concrete expression of doctrine," there would be good grounds for pointing to the Gorshkov series of 1972-73. It is understandable that there should be controversy over whether Gorshkov is advocating or announcing in this series, since nowhere does he unambiguously state that his work represents either doctrine itself or an expression of doctrine. However, we have already indicated the three main areas in which doctrine differs from science—degree of authoritativeness, scope of subject-matter coverage and time-frame of focus. It is very interesting that Gorshkov, by using certain key expressions, manages to convey to his knowledgeable Soviet readers where his work stands with respect to all three of these essential differences—and each time he comes down on the side of doctrine.

To show the authoritative impact of doctrine and its concrete expressions, for example, the Soviets employ the tell-tale terms "unity

⁴² Lomov in KVS, No. 10, 1962, p. 12.

⁴³ Ibid.; Sushko and Kondratkov, op. cit., 93; *Bol'shaya Sovetskaya entsiklopediya* (3rd ed.), V, 205.

⁴⁴ Babakov in KVS, No. 19, 1968, p. 64.

⁴⁵ Azovtsev, V. I. *Lenin i Sovetskaya voennaya nauka*, 88.

⁴⁶ S. G. Gorshkov, "The Great Tasks of the Soviet Navy," KZ, 5 February 1963.

⁴⁷ Gorshkov, "The XXIII Congress of the CPSU and The Tasks of Navy Men," MS, No. 5, 1966, p. 8.

of views" and "united views." In this connection, both Gorshkov and his editors say that the aim of the series is to promote the development of a "unity of views" among naval officers and the command personnel of the armed forces as a whole.⁴⁸ With regard to the scope of subject-matter coverage, the Soviets say that doctrine deals with both "war and peace," in contrast to military science, which concentrates on war and its main content, the armed struggle. Here we have only to look at the general title of the Gorshkov series: "Navies in War and Peace." And the text deals with just that—the peacetime political utility of naval power as well as its value in war.⁴⁹

With regard to the third area of difference, temporal orientation, we have observed that one of the important branches of military science is military history, especially the history of the military art. In addition, military science tries to determine "the prospects for the further development of military affairs," to quote Marshal Grechko.⁵⁰ Doctrine, however, is not interested in past and future, only in "the present and very near future." What does Gorshkov say on this head? In other works he has indicated his orientation. Thus a 1967 article of his was devoted to the historical development of the naval art in the U.S.S.R.,⁵¹ and one of his recent articles noted the significance of research on the "prospects for the development of military affairs," including the "theory of the naval art," which he then proceeded to review.⁵² In his 1972–73 series, however, Gorshkov specifically denies any intention of probing either the past or the future. In other words, he tells us twice ("unity of views," navies in "war and peace")⁵³ that he is treating doctrine; now he apparently tells us, for good measure, that he is not treating military science. His denial of an historical focus as such is all the more curious—and pointed—when we consider that a substantial part of Gorshkov's treatise consists of an archival examination of the naval art presented for the most part in strict chronological order. Evidently historical examples selectively adduced to substantiate particular doctrinal tenets are something quite different from that "military-historical science" which is a preliminary to doctrine.

Gorshkov's denial of a focus on the past and on future prospects come forward toward the end of a passage which he had begun by noting that the foundation of "Soviet military doctrine" was the

⁴⁸ Gorshkov, "Navies in War and Peace," MS, No. 2, 1972, pp. 20, 23: In denying the authoritativeness of the Gorshkov series, McGwire sees a subtle distinction between Gorshkov's 1966 statement that united views had already been developed on the basis of doctrine and his editors' 1972 introduction which spoke of "promoting" the development of a unity of views (see Michael McGwire, "Advocacy of Seapower in an Internal Debate," in James M. McConnell, Robert G. Weinland and Michael K. McGwire, Admiral Gorshkov on "Navies in War and Peace" (Center for Naval Analyses CRC 257, Arlington, Va., 1974), 22.) However, the Russians themselves do not recognize this subtlety. As Colonel P. Sidorov put it on one occasion, "While promoting the development of common views on the basic problems of military development, . . . Soviet military doctrine does not fetter the thinking of military theorists and the initiative in action of military leaders who are entrusted with the guidance of the armed forces" ("Foundations of Soviet Military Doctrine," Soviet Military Review, No. 9, 1972, p. 14).

⁴⁹ See McConnell, "Gorshkov's Doctrine of Coercive Naval Diplomacy in Both Peace and War," in McConnell, Weinland, McGwire, op. cit., 98–101.

⁵⁰ "Report of U.S.S.R. Minister of Defense Marshal of the Soviet Union A. A. Grechko," KVS, No. 8, 1973, p. 17.

⁵¹ Gorshkov, "Development of the Soviet Naval Art," MS, No. 2, 1967, pp. 9ff.

⁵² Gorshkov, "Certain Problems of Developing the Naval Art," MS, No. 12, 1974, p. 24.

⁵³ Gorshkov, "Navies in War and Peace," MS, No. 2, 1972, pp. 20, 22–23.

principle of cooperation among all branches of the armed forces, set forth as early as 1921 by M. V. Frunze in his work, "Unitive (edinaya) Military Doctrine and the Red Army." Since an understanding of this principle of cooperation "promotes the development of a unity of operational views in the command personnel of the armed forces," he wanted to examine these problems insofar as they applied to the navy. However, in doing so, he had "no intention of treating the history of the naval art, much less of determining the prospects for naval development." He then tells us that, in focusing on the navy, he does not mean to imply any "unique" significance of naval forces in the armed struggle.⁵⁴

This denial of the uniqueness of the naval sphere I interpret as possibly another tipoff that military science is not involved. In the context of military science, as Gorshkov himself informs us in a recent article, the existence of a naval art separate from the military art is justified precisely on the grounds that it is a "qualitatively unique" branch.⁵⁵ In the context of doctrine, however, the naval sphere has no claim to uniqueness. There is no such thing as a naval doctrine; there is only a single military doctrine for the entire state and all branches of the armed forces, particular tenets of which might apply to the navy alone.

CONTENT OF THE GORSHKOV SERIES

A DOCTRINE OF "CONSERVING FORCES"

If I had to formulate a single theme for the Gorshkov series, I would put it like this: he is fleshing out with particulars the official views of the state political and military leadership on the use of the Soviet Navy as a direct instrument of policy in both peace and war. One has to be impressed by the attention Gorshkov devotes to peacetime naval diplomacy in the series (deterrence, offsetting military-political pressure, protection of "state interests" in the Third World, etc.) However, since he seems to offer nothing new in principle on this score, I will not deal further with the subject but examine instead what appears to be the novel point of the series and the major reason for its publication.

To employ Soviet terminology, Gorshkov seems to be advancing a doctrine of "conserving" strategic naval forces, the "method" being that of the SSBN "fleet-in-being," with the aim of achieving the "political and military goals of war" directly rather than through the prior attainment of "military-strategic goals"—in short, a "military-political" (or "politico-strategic") approach to the armed struggle rather than the customary "military-strategic" approach. To employ my own terminology—or, rather, terminology borrowed, I believe, from Michael McGwire—the Soviets seem to have resolved on a wartime "withholding strategy" for their SSBNs. They will not fire off all their SLBMs in the "initial period," as was apparently the intention earlier, but hold at least some of them back for their political impact—deterrence of the U.S. SSBN threat, applying and offsetting pressure in intrawar bargaining and in the context of peace negotiations.

⁵⁴ Gorshkov, "Historical Experience and the Present Day," *Voprosy filosofii*, No. 5, 1975, p. 26.

⁵⁵ International Institute for Strategic Studies, "The Military Balance, 1974-1975" (London, 1974), 4, 73.

We must remember in this connection the "practical" orientation of Soviet military doctrine, its focus on "the present and very near future." In this case "the present and very near future" would see the appearance in the Soviet operational inventory of the SS-N-8 SLBM (IOC c. 1972), followed by the SS-N-13 missile (IOC c. 1975).⁵⁶ The carrier of the SS-N-8, the D-class SSBN, would be within strike range of the United States even in the Barents and Norwegian Seas, thereby eliminating the need to traverse ASW-infested waters to the Atlantic and permitting the allocation of resources to the protection of the Delta that could not reach or might not be combat-viable on the open ocean. As for the imminent introduction of the SS-N-13, regardless of the motives for the initial development of this missile, it may have occurred to the Soviets that the retrofitting of some Y-class SSBN tubes with the SS-N-13 would give the Yankee a self-defense capability against surface ASW, over and beyond that afforded by the SSBN's natural stealth and quietness, which the United States is content to rely upon alone for SSBN security. The question may have been, what to do with these new capabilities—and the Gorshkov series may very well have been the answer.

Before the appearance of the Gorshkov series, the emphasis in the literature on the navy had been on the decisiveness of the "initial period" of a general nuclear war and the importance of the first mass missile strikes, sea- as well as land-based, for rapidly achieving the war's strategic goals.⁵⁷ While Gorshkov stresses the problem of time urgency in two-sided tactical engagements ("the battle"), he conspicuously ignores it in connection with strategic "strikes,"⁵⁸ which are always understood as unilateral acts in the military art. His focus is not on the beginning of the war but on its end and especially when the question of peace becomes central and diplomacy is reasserting its rights at the expense of strategy. At one point, for example, he generalizes that it is "in the closing moments of war" that seapower is "especially needed," so that "policy" will have the grounding required to impose "peace terms."⁵⁹

This theme, though it is not the only one, pervades Gorshkov's historical analysis. The importance of fleets in the Crimean War, he says, "was determined by the extent to which their presence in a given theater could be used by the diplomats of the opposing sides to support their positions at the peace talks." At the end of the Russo-Japanese War, when "the question of peace was raised" and it became time to realize "political goals," St. Petersburg's lack of seapower proved crucial for its bargaining strength. In World War

⁵⁶ Sokolovskiy, *op. cit.*, 255.

⁵⁷ In a more recent work—an article in the "Naval Digest" in December 1974—Gorshkov also ignores the factor of time urgency with regard to strategic ballistic missile strikes. In 1966, in discussing the categories of the military art, Colonel Strokov had discussed "scope" and "the initial period of the war" together, the same approach taken by the Sokolovskiy collective in all three editions. Gorshkov, however, treats "scope" alone when dealing with strategic strikes; nowhere is it indicated when the strikes will take place. To be sure, there is no positive hint of a withholding strategy in this later Gorshkov effort, but this is to be expected from the nature of the work. It was perfectly permissible to discuss withholding in a "concrete expression of doctrine," since doctrine has a military-political side; however, military-political missions would have been out of place in a military-scientific article frankly devoted, as Gorshkov tells us, to "an investigation of the prospects for developing military affairs, including the theory of the naval art." See Gorshkov in MS, No. 12, 1974, pp. 24ff; Strokov in Strokov (ed.), *op. cit.*, 608–609; Sokolovskiy (ed.), *Voennaya strategiya* (2nd ed., Moscow, 1963), 253–254.

⁵⁸ McConnell, *op. cit.*, 78.

⁵⁹ *Ibid.*, 78–80, 84.

I the Germans began their unrestricted submarine campaign when a transition had begun in world politics "from an imperialist war to an imperialist peace;" and the campaign represented Berlin's "last chance, if not to achieve victory, then at least to gain an honorable peace." After the fall of France in 1940,

It looked as though the plan of Hitler's Germany to gain supremacy in Western Europe with ground troops and aviation alone was near success. But England was still unsubdued and it was impossible to compel her surrender without sufficient naval forces. . . .⁶⁰

And so on.⁶¹ Almost every historical example in the series is used to show the value of seapower, in the later and not the earlier stage of the armed struggle, in righting (or partially righting) an unfavorable balance already struck in the land battle or, more commonly, in ratifying a favorable decision attained on land and forcing the enemy to acknowledge his defeat and accept a dictated peace.

This comes out most clearly in Gorshkov's reversal of previous Soviet judgments on the Battle of Jutland in 1916. Admiral Belli had contended in 1964 that both the German and the British Navies had a "doctrine of conserving forces" in World War I, their "method" being that of the "fleet-in-being." German doctrine was only partly motivated by the desire "to have an argument when conducting peace negotiations," but this was said to be the entire sum and substance of the British approach: The admiralty sought to preserve its fleet "as an important factor at the moment of concluding peace." In Belli's view this "politico-strategic" approach was wrong; military strategy should have been allowed to take its course.⁶²

Gorshkov, in his series, takes note of previous Soviet criticism of British "indecisiveness" and "reluctance to risk major combatants in order to achieve complete victory," but insists that the criticism "lacks objectivity." The Entente was winning the ground war on the continent; all England had to do was "maintain her existing position on the seas" and not permit the Germans to reverse the unfavorable balance on land through naval superiority.⁶³

Along with positive hints of a wartime military-political mission for the navy, other items appeared in the series which seemed to be compatible with and only fully explicable when considered in the light of a withholding mission. The most important of these is the matter of submarine vulnerability against enemy ASW. In the past Soviet military strategists, Gorshkov included, had contended that SSBNs were "in reality vulnerable" and could be "successfully" com-

⁶⁰ In the American Revolution, according to Gorshkov, the main missions were accomplished by the armies; after Britain had lost "several battles on land" and taken into account the "unfavorable relative strength of her forces at sea," she was "forced to recognize" colonial independence. In the Napoleonic Wars, "even though France had the necessary ground troops at her disposal," the loss of the French fleet at Trafalgar made Britain and her colonies "practically invulnerable to attacks from sea axes. England was able to deprive the enemy of the weapon most dangerous for her—the navy. . . . The liquidation of the threat from the sea gave the English bourgeoisie a free hand to organize and finance new alliances to continue the struggle. . . . Thus, the course of the war at sea and the gaining of domination by the English Navy had a great effect on the further policy of the belligerents." See Gorshkov in MS, No. 2, 1972, pp. 27–29.

⁶¹ McConnell, op. cit., 78–79.

⁶² Ibid., 79.

⁶³ Gorshkov in A. A. Grechko (ed.), *Yadernyy vek i voyna* (Moscow, 1964), 66; Gorshkov in *Pravda*, July 28, 1968; McConnell, op. cit., 81.

bated.⁶⁴ Now, if one has turned down the withholding option—and the 1964 Belli work would seem to suggest that the Soviets had considered and rejected that option—it makes sense to stress SSBN vulnerability, depending on one's reasons for not wanting to withhold. Unlike the enemy, you might have insufficient land- and sea-based missiles together for launching the former and withholding the latter; or you might feel your SSBNs are more vulnerable than the enemy's. To avoid giving him a psychological advantage, you insist that all SSBNs are vulnerable, meaning that his are vulnerable if they are withheld, while yours are unaffected, since you have no intention of withholding. Or the Soviets might think there was a real technological perspective for ASW and they would not want to foreclose that option until they had gone the research route. So they claim SSBNs are vulnerable, meaning they will be when Soviet R. & D. is successful.

Gorshkov takes a quite different line in his 1972–73 series. Instead of the vulnerability of the submarine, he stresses its “great survivability” in comparison with land-based launch facilities; moreover, this great survivability theme appears in a context in which “deterrence” is being discussed literally, not as a peacetime mission, but as a “role in modern war.”⁶⁵ (And this is precisely what a withholding strategy would amount to—deterrence in war.)

However, Gorshkov is not content simply to assert the great survivability of submarines; he looks at the other side of the relationship between the submarine and its adversary, depreciates the cost-effectiveness of ASW in past wars and directly contends that the showing of ASW against modern nuclear-powered submarines will be even poorer. He does admit that, in both world wars—and in spite of the great cost—ASW was ultimately successful, but he insists this was because the submarines were not given adequate protection. The conclusion is repeatedly drawn: The “combat stability” of the “main arm” of the fleet—today this is the submarine, the main component of which is the SSBN—must be maintained through support forces (now aviation and surface ships). If the Soviets intend to fire off all their SLBMs at the beginning of a war, it is difficult to understand the suddenly magnified attention given to platform survivability; they would not need to concentrate on this. But they would need to in a protracted struggle with hostile ASW in a wartime environment, given their geographical disadvantages (which Gorshkov himself points out)⁶⁶ the more advanced state of Western ASW and the less advanced state of Soviet SSBN-quieting technology (which he ignores).

Perhaps enough evidence has been adduced to suggest a wartime withholding doctrine for the Soviet Navy. The evidence has all been drawn from historical examples and generalizations in the main body of the Gorshkov text. However, in addition to the requirement to test the hypothesis with more and better data, including from other fields, certain questions remain from the Gorshkov series itself. The Soviets may have a fleet-in-being role for some of their SSBNs, but is this a main mission or a secondary one, for the SBNs themselves and for the navy as a whole? And if the withheld SSBNs have to be given protection, are the necessary support forces to materialize from mission reallocations or new allocations? Gorshkov's historical

⁶⁴ Ibid., 80–81.

⁶⁵ Ibid., 81–87.

⁶⁶ Gorshkov in MS, No. 2, 1973, pp. 24–25.

examples may give us hints of this but only after impressionistic weighting and inconclusive inference on our part. We have to go to his final, one-page summary to attempt to extract an answer; no man writes a book without putting his conclusions in the summary, and we cannot claim to have discharged our obligations without analyzing it. Unfortunately, this is easier said than done; it gets us into the semantics of Soviet military discourse, which we think we know because it is so familiar, familiarity breeding indifference if not contempt.

MILITARY POLICY, MILITARY STRATEGY, AND NATIONAL DEFENSE

We can tell what Gorshkov thinks is important by observing what he singles out in his final one-page summary, when space is at a premium and only the essentials are treated. He begins by saying:

In order to insure national defense (*oborona strany*) and accomplish military-political tasks, states have always aspired to have armed forces, including navies, appropriate to these goals and to maintain them at a modern level. As a part of the national armed strength, navies fulfill the important role of one of the instruments of state policy in peacetime and constitute a mighty instrument for attaining the political goals of the armed struggle in war.

Toward the end he states:

Soviet navy-men consider it their very first duty to maintain all naval forces constantly in a high state of readiness in order to accomplish tasks of state defense (*oborona*) from sea axes and in every way to raise their skill in employing combat equipment in any climate and weather state . . .⁶⁷

This is consistent with his statement earlier in the series that "national defense (*oborona strany*) against attacks by the aggressor from ocean axes" is, in fact, the Navy's "main task."⁶⁸

I cannot help but think this unusual, to say the least—the emphasis on accomplishing military-political tasks (as against military-strategic tasks), on the attainment of political goals in war (as against strategic goals), and on the navyman's very first duty (main task) of maintaining readiness for national defense (*oborona strany*) rather than national defense (*zashchita strany*). In other words, the Soviets have two terms for national defense—national *oborona* and national *zashchita*.⁶⁹ Never before have I collected a single reference to the "readiness" of the armed forces—or any of its branches—for national *oborona*, much less this being their main task.

We have to note the systematic and consistent character of the terminology used with respect to the two systems—the "system of

⁶⁷ *Ibid.*, No. 12, 1972, pp. 20–21.

⁶⁸ To avoid objections based on semantics of the law courts, etc., let me stress that the comparisons we are discussing have to do only with national defense, in whatever form this might take—state defense, defense of the U.S.S.R., defense of the motherland, et cetera. *Oborona* and *zashchita* are of course used in a great many other military and nonmilitary contexts, each of which has its own rules of usage or lack of rules. (I should also note my impression that there is no verb "to defend" used in connection with the armed forces in the system of national *oborona*; there is only the noun *oborona* and its adjectival derivative *oboronnny*. In other words, when we encounter the verb *oboronyat'*/*oboronit'* in connection with the armed forces, it carries the same connotations as *zashchischat'*/*zashchitit'*.)

⁶⁹ See, for example, Cols. V. Serebryannikov and M. Yasyukov, "Peaceful Co-existence and Defense of the Socialist Fatherland," KVS, No. 16, 1972, pp. 10–11, 15; Zakharov (ed.), 50 let Vooruzhennykh Sil SSSR, 556; Grechko in KVS, No. 8, 1973, p. 13; Pankratov in Zheltov (ed.), V. I. Lenin i Sovetskie Vooruzhennye Sily, 33. Incidentally, I have never encountered references to national military capabilities or national defense readiness.

national oborona" (never referred to as the system of national zashchita) and the "combat system of the armed forces" (occasionally referred to as the "system of armed defenders" (zashchitniki)). At the apex of the system of national oborona apparently stands the Oborona Committee or Higher Oborona Council (traditionally never designated as zashchita committees or councils). Predecessors of the current council have always been said to be responsible for national oborona, not national zashchita. Since in the past these councils or committees have also always been said to embody the "national political and military leadership," "the national military-political leadership" or simply the "national political leadership," each of its members have been referred to as a state political and military leader, a military-political leader or simply a political leader. As a "military-political organ," this defense committee or council is responsible for formulating the "defense policy" or "military policy of the state," as well as "state military doctrine" (also referred to as "political and military doctrine" or "military-political doctrine"). Doctrine determines the main lines of "military" or "defense" (oboronnoe) development. This development generates national or state oboronnoe might, strength or capabilities and national or state "military" might, strength or readiness, occasionally referred to as "political and military" might, "military-political" might and apparently, on rare occasions, simply "political" might.⁷⁰ Thus we get the alternative usage of terms in the system of national oborona—political and military, military-political, political, military, and oborona, never zashchita.

At the apex of the "single combat system of the armed forces," on the other hand, stands the "strategic leadership of the armed forces," embodied in the Higher or Main Military Council (Supreme High Command in wartime). Whereas the defense council at the state level is responsible for "leadership of national oborona and the armed forces," the subordinate military council or command at the level of the armed forces carries out "direct leadership of the armed forces." And whereas the military-political leadership is responsible for "military development" in general, the strategic leadership is responsible only for a component—"the development of the armed forces." As befits a "combat system," the development of the armed forces is usually said to generate the "combat" readiness, capabilities, strength or might "of the armed forces." However, when they want to indicate the purpose of this readiness, for example, "national defense," the word used for defense is zashchita; and it is obligatory. For the navy alone I have collected 124 examples of "created for defense," "trained for defense" or "ready for defense" and in each and every case—bar none, no exceptions—zashchita was employed, never oborona.

Now, we know that the national political (political and military, military-political) leadership is responsible for setting political goals, also referred to as political and military goals or military-political goals, that is, the goals of military policy. It is the same with military-political tasks. Since "national oborona" is defined as the aggregate

⁷⁰ Gen.-Lt. N. N. Shkodunovich (ed.), *Kratkiy slovar' operativno-takticheskikh i obschchevoennykh slov (terminov)* (Moscow, 1958); tr. by Asst. Chief of Staff for Intelligence, Dept. of Army as Russian-English Dictionary of Operational, Tactical and General Military Terms (Wash., Dept. of Commerce, n.d.), 13.

of "military-political measures,"⁷¹ it would seem to follow that tasks in the "national oborona" are "military-political tasks," which we know to have been historically assigned to the armed forces by the national political and military leadership,⁷² in contrast to "military-strategic tasks" of the armed forces, assigned by the strategic leadership of the armed forces for the realization of military-strategic goals.⁷³ In other words, the armed forces have orientations in both systems and there even seem to be two different sets of "party principles" to govern these orientations—the principles of "leadership of the armed forces" and the principles of "military development." The first set regulates the Party's interaction with the military commands, in order to insure "their coordinated and effective accomplishment of tasks for the oborona of the motherland." The second set aims at perfecting the "internal" organization and development of the armed forces and their "combat and political training" in accordance with the goals and missions of "wars in zashchita of the Socialist fatherland."⁷⁴

The armed forces as a whole, and each of its branches, have consistently had tasks in both systems. In the interwar years the Red Army was said to have been transformed into a force "responsive to the tasks of Socialist state oborona and the requirements for waging war."⁷⁵ On the eve of the Soviet Army and Navy jubilee in 1967, a number of military and air defense districts were given awards "for their great contribution to the cause of strengthening the defense (oboronnoe) might of the Soviet state and its armed zashchita."⁷⁶ The strategic missile troops are considered "primary instruments for deterring an aggressor and decisively defeating him in war," and presumably for this reason we have references to "the tasks of these troops in the general system of national oborona" and to their "combat" potential for fulfilling "the basic strategic tasks of nuclear-missile war." As for the Air Force, the distinction is made between "its role and mission in the general system of socialist state oborona and its role and place in the Soviet Union's armed forces."⁷⁷ With respect to the 1967 navy, the Central Committee had "defined its place in national oborona and indicated the path for developing a modern ocean-going nuclear-missile fleet, capable of accomplishing strategic tasks of an offensive character in modern war."⁷⁸

⁷¹ Gen. of the Army V. Kulikov, "Strategic Leadership of the Armed Forces," VIZ, No. 6, 1975, p. 12; Grechko, Vooruzhennye Sily Sovetskogo gosudarstva, 64.

⁷² Pospelov (ed.), op. cit., VI, 218, 221; Bagramyan, Ivanov et al. (eds.), op. cit., 401–402; Kulikov in VIZ, No. 6, 1975, p. 14.

⁷³ Col. A. Babakov, "Leninist Principles of Military Development," KVS, No. 11, 1969, pp. 22–23.

⁷⁴ Sokolovskiy (ed.), Voennaya strategiya (3rd ed.), 272, 442.

⁷⁵ Gen.-Col. G. Sredin, "On Guard Over the Soviet Fatherland," Partiyaya zhizn', No. 4, 1974, p. 18; Editorial, "Higher Vigilance and Combat Readiness," Ty i snabzhenie, No. 4, 1968, p. 2.

⁷⁶ Chief Air Marshal K. Vershinin, "The Mighty Air Force of the Soviet Power," KVS, No. 12, 1966, p. 21.

⁷⁷ Fleet Adm. V. Kasatonov, "On Combat Watch," KZ, July 30, 1967, p. 1. For references in a naval context to the "system" or "combat system of the armed forces," see Vice-Adm. N. Vinogradov, "Faithful Guardian of the Sea Frontiers of Soviet Power," Izvestiya, July 23, 1950; Rear-Adm. M. Yakovenko, "Naval Forces of the Soviet Power," Sovetskaya Litva, July 23, 1950; Adm. A. Golovko, "The Mighty Navy of the Land of Socialism," Izvestiya, July 29, 1951; Gorshkov, "Always on Combat Watch," Pravda, July 31, 1966; Gorshkov's "Preface" to Rear-Adm. N. A. Piterskiy (ed.), Boevoy put' Sovetskogo Voenno-morskogo Flota (Moscow, 1967), 11; Gorshkov in Voprosy filosofii, No. 5, 1975, pp. 26–27.

⁷⁸ Gen. of the Army I. Shavrov, "The XXIV Congress of the CPSU and the Further Strengthening of National Defense Capabilities," KVS, No. 8, 1975, p. 17; "In the Central Committee of the CPSU," KVS, No. 5, 1975, p. 4 and Kommunist, No. 3, 1975, p. 9; Col. V. Izmaylov, "The Nature and Special Features of Modern War," KVS, No. 6, 1975, p. 72; Col. M. Yasyukov, "Leninism—an

The Warsaw Pact illustrates the same systemic dualism. On the one hand the Pact, which is distinguished by "unity in its political and military goals," is a "military," "political and military" or "military-political alliance of the European Socialist countries," through which the "military policy of the U.S.S.R." is coordinated with "defense (oboronye) measures" of the other Socialist countries, each of whom has assumed important "political and military obligations." Viewed from this perspective, the Pact aims at "deepening the military collaboration (or political and military collaboration) of the states of the Warsaw Pact" and at "strengthening allied national defense capabilities (oboronosposobnost') and the fulfillment of obligations for joint oborona." Viewed from the perspective of the system of the armed forces, on the other hand, the Pact is considered to be a "combat alliance" with a "military-strategic foundation," aimed at "strengthening the combat collaboration of the Warsaw Pact armies" and serving the goal of "joint zashchita."⁷⁹ As one writer puts it, "the common tasks for zashchita of the socialist camp against attacks by the imperialist aggressors presuppose not only the combat collaboration of the armies of the socialist countries but also a unity of strategic views."⁸⁰

Pact exercises and maneuvers also serve a dual purpose. They have a "great military-political significance," both in demonstrating the "growing defense (oboronnaya) strength of the Socialist states" and in cementing the unity of the Socialist countries. At the same time these exercises perfect the skills of military personnel and "enrich the theory of military art of the Socialist armies."⁸¹

While the armed forces have tasks in both systems, the main orientation has traditionally been within the combat system of the armed forces. Whereas the nation (strana), that is, the state, does not, properly speaking, undergo preparations for zashchita, the armed forces do not undergo preparations for oborona—hence the common formula, expressed by Marshal Grechko as "the preparation of the nation for oborona and (the preparation) of its armed zashchita."⁸² The Soviets never tire of telling us that "the armed forces are an instrument for waging war,"⁸³ and all of the U.S.S.R.'s wars are fought in the name of national zashchita. The armed forces are created for national zashchita; they undergo training or preparation (podgotovka) for national zashchita; having been trained, they are prepared or ready (gotovyy) or exist in a state of preparedness or readiness (gotovnost') for national zashchita; and when war becomes a fact, the troops engage in "armed state zashchita," in the "military zashchita of the U.S.S.R." Today there are apparently no such things as armed struggles in the national oborona. And as far as I can

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Ideological Weapon of the CPSU," KVS, No. 7, 1975, p. 17; Col. I. Igoshev, "The World Socialist System—Today's Decisive Force," KVS, No. 10, 1975, pp. 76-77; Sushko and Kondratkov, op. cit., 289; Grechko, Vooruzhennyye Sily Sovetskogo gosudarstva, 391, 392; Gen. of the Army P. Batov, "Combat Alliance of the Fraternal Peoples," KZ, May 14, 1964; Col. A. A. Babakov in Zheltov (ed.), V. I. Lenin i Sovetskie Vooruzhennyye Sily, 132; Capt. 1st Rank P. Zvantsev, "In a Unitive System," MS, No. 3, 1975, p. 26.

⁷⁹ Sokolovskiy (ed.), Voennaya strategiya (3rd ed.), 37.

⁸⁰ Grechko in Kommunist, No. 4, 1971, p. 96; Zvantsev, op. cit., 28.

⁸¹ Grechko, Vooruzhennyye Sily Sovetskogo gosudarstva, 81.

⁸² Grechko speech of July 1968 in Chernenko and Savinkin (compilers), op. cit., 457; Sushko and Kondratkov, op. cit., 274.

⁸³ I have treated the controversial subject of Soviet usage of zaschita strany at some length in a forthcoming paper, tentatively entitled Military-Political and Military-Strategic Leadership in the

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determine, until the appearance of the Gorshkov series there was apparently no such thing as a readiness of the armed forces for national oborona. Readiness always implied "combat readiness," readiness to "repel" the aggressor's attack and "defeat" him, "readiness for zashchita of the motherland."⁸⁴

In emphasizing "military-political tasks" and "political goals" to the exclusion of military-strategic tasks and goals, Gorshkov may have been suggesting the same thing as when he employed state oborona rather than state zashchita terminology, that is, that the navy's main orientation is now within the military-political system of national oborona and not within the combat system of the motherland's armed zashchitniki, where military strategy prevails. In peacetime, of course, military policy determines military strategy through the mediation of military doctrine. However, when it comes to war, doctrine tends to retire and make way for a relatively autonomous military art; "not doctrine but strategy leads the war and the armed struggle."⁸⁵ This does not mean the political struggle is in abeyance in war. The Russians, as students of Clausewitz, have always regarded war as a continuation of politics by violent means, but they insist on the integrity of the system channelizing this violence; once the armed struggle has begun—and the armed struggle is the "specific sign" of war—it is subject to its own "laws" and not those of the diplomatic struggle. Soviet military writings are studded with references to "decisively defeating" the enemy and "achieving victory," which signifies that in war the political struggle shifts from nonmilitary to military forms, and that war has its own logic, tasks and goals—"strategic tasks" and "strategic goals"—which only in the "last analysis" lead to the attainment of political objectives.⁸⁶ As one set of authors put it,

In past wars the main military-strategic goals of the warring sides consisted of defeating or weakening the opponent's armed forces and, as a result of this, the seizure and retention of vitally important regions or administrative-political centers. The achievement of such goals usually insured the attainment also of the political goals set for the war.⁸⁷

The situation may be somewhat different today, but not in the sense we have been discussing. Today, it is said,

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USSR. However, for juxtapositions of national oborona and national zashchita in the same passage, which serve to point up the distinction between them, if not always the grounds of the distinction, see Col. Yu. Korablev, "V. I. Lenin on Ways of Strengthening Soviet State Defense," VIZ, No. 4 1970, p. 18; F. Petrov, "The CPSU—Organizer of the Defense of the Socialist Fatherland," VIZ, No. 2, 1975, p. 100; Zubarev in Zubarev and Sidorov, op. cit., 145; Babakov in KVS, No. 19, 1968, p. 64 and No. 11, 1969, p. 26; Grechko speech, XXIV s"ezd Komm. Partii Sov. Soyuz, I, 348; Grechko, Vooruzhennye Sily Sovetskogo gosudarstva, 94; Grechko (ed.), Istoriya vtoroy mirovoy voyny, 11, 171; Azovtsev, *V. I. Lenin i Sovetskaya voennaya nauka*, 93; Lipitskiy, *Voennaya deyatel'nost'* TsK RKP (b) 1917–1920, 121; Bondarenko in KVS, No. 18, 1974, p. 25; Col. S. Lukonin and Lt.-Col. N. Tarasenko, "V. I. Lenin on the Defense Function of the Socialist State," KVS, No. 10, 1969, pp. 22, 24; E. Tyazhel'nikov, "The Leninist Komsomol and the Armed Forces of the USSR," KVS, No. 4, 1973, p. 14; S. Levitin in S. Levitin (compiler), *Partiya v bor'be za uprochenie i razvitiye sotsialisticheskogo obshchestva: usilenie oborony strany, 1937 god—iyun' 1941 goda* (Moscow, 1962), 69.

⁸⁴ Kozlov, Smirnov et al., *O Sovetskoy voennoy nauke*, 387, 388.

⁸⁵ Sokolovskiy (ed.), *Voennaya strategiya* (3rd ed.), pp. 30, 31.

⁸⁶ Ibid., 243–244, also 151, 210–211.

⁸⁷ Col. M. Ivashchenko and Lt.-Col. E. Lemeshko, "F. Engels on the Dialectics of Development of the Methods of the Armed Struggle," KVS, No. 14, 1970, p. 13.

the success of the retaliatory nuclear-missile strike, in combination with active operations by all branches of the armed forces, must insure the achievement of the strategic goals of the war and the nature of the solution to the basic military-political tasks in the future. . . .⁸⁸

Thus, it's not that Gorshkov was in error in pointing up the navy's usefulness in achieving the "political goals of the armed struggle in war;" all wars have political goals. It's only that Gorshkov left out an intermediate link that traditionally has been in the chain—the fact that "the military potential of each country is realized by policy through military strategy,"⁸⁹ which must be accorded its due in discussion. This is just as true of nuclear strike forces as of other forces, even though they affect "the sphere of strategy that is most directly connected with policy."⁹⁰ In all examples I have collected, if there is a reference to political goals, there is a simultaneous reference to strategic tasks or goals or to the attainment of political goals through strategy or instruments of strategy. Indeed, Soviet usage shows that it is not always necessary to mention political goals and, in fact, it is the more common practice to discuss only strategic tasks or goals, the political objectives being understood. Gorshkov, however, leaves out what seems to be required and leaves in the dispensable—and we wonder why.

EVOLUTION OF THE NAVY'S NATIONAL DEFENSE TASK

Gorshkov and other naval spokesmen have not always left out "the required," nor had they previously identified "national oborona against possible attacks from ocean axes" as the navy's "main task." True, the navy, like all the other branches of the armed forces, has always been thought of as important "in the general system of national oborona,"⁹¹ but when Lenin decreed the existence of the Red Navy in 1918, it was because he "attached great significance to national zashchita from the sea."⁹² On Navy Day 1963 the navy's senior political officer explained that the holiday "constitutes national recognition of the important role and great merit of the navy in zashchita of the world's first socialist state and in strengthening its oborono-capabilities."⁹³ At this time the navy had only some 100 SLBM's, all of relatively short range;⁹⁴ as a consequence, it was apparently not given a true strategic-strike mission. To use the terminology introduced later, within the system of the armed forces the navy was basically oriented on "combatting the enemy fleet," rather than conducting "operations against the shore." That is, it was said to have "everything necessary, not only for defending our shores, foiling the aggressor's attacks from the sea and neutralizing the strike groupings of his forces, but also for offensive operations dealing crushing strikes on the aggressor's navy and its bases in remote regions of the oceans."⁹⁵

⁸⁸ V. M. Kulish in Kulish, Solodovnik et al., op. cit., 26.

⁸⁹ Lt.-Col. V. G. Kozlov in Zheltov, Kondratkov and Khomenko (eds.), op. cit., 71.

⁹⁰ Adm. V. A. Kasatonov, "Thirty Glorious Years," KZ, July 27, 1963.

⁹¹ Vice-Adm. G. M. Egorov, "Always on Combat Watch," *Sovetskaya Rossiya*, July 30, 1967, p. 3.

⁹² Grishanov, "Guardian of our Sea Frontiers," *Izvestiya*, July 28, 1963.

⁹³ Walter D. Jacobs, "Soviet Strategic Effectiveness," *Journal of International Affairs*, XXVI, No. 1, 1972, p. 65.

⁹⁴ Gorshkov, "A Short-Sighted Strategy," *Izvestiya*, May 19, 1963, p. 3.

⁹⁵ Jacobs, op. cit., 66.

In this respect the year 1966 was apparently a watershed. It is at this time, we will remember, that Gorshkov announced the development of "united views" on the navy's wartime tasks, "proceeding from the tenets of Soviet military doctrine." In this connection we have to keep in mind, too, the "practical" orientation of doctrine; it exists for "the present and very near future," and the very near future would see the initial deployment of the Yankee-class SSBN with the long-range SS-N-6 ballistic missile, which would bring the operational SLBM inventory up from circa 125 in 1966 to 440 in 1971.⁹⁶ "The special role of strategic missiles in national oborona and their enormous combat potential" had long been recognized,⁹⁷ and this is understandable since, as Colonel Kulish explains, nuclear-missile forces "are a most powerful strategic instrument and have a direct influence on international relations."⁹⁸ The enhanced military-political and military-strategic prestige of the navy was announced by Marshal Malinovskiy at the XXIII Party Congress in a special formula: the Strategic Missile Troops and the navy's SSBN's were now "main instruments for deterring the aggressor and decisively defeating him in war."⁹⁹

With this formula the Central Committee had apparently (as Admiral Kasatonov put it in 1967) "defined its (the navy's) place in national oborona (military-political strophe) and indicated the path for developing a modern ocean-going nuclear-missile fleet, capable of accomplishing strategic tasks of an offensive type in modern war (military-strategic antistrophe)."¹⁰⁰ There can be no doubt of the nature of these latter tasks. According to one author, the acquisition of SSBNs "permits posing before the fleet the strategic tasks of destroying important military and economic targets of the enemy in the depths of his territory." But he equally emphasized that "a fundamental task of our navy in a future war will be that of combating enemy naval forces at sea and in their bases, and primarily his submarine and surface missile-carriers and attack carrier task forces." And he added that "the fight against submarines remains one of the most important tasks of the navy."¹⁰¹ To fully appreciate the contrast with today, one must go to the literature of that period to see its stress on the navy's role as "a most important instrument of strategy," "a most important instrument of the Supreme High Command," "a most important instrument of Soviet state zashchita," and on the navy's "readiness for the Motherland's zashchita" and its ability to accomplish "complex tasks for the zashchita of the Socialist countries from sea and ocean axes."¹⁰² And this was not just a parochial navy position; the Fleet's enhanced strategic importance generally pervades the military literature.

⁹⁶ Derevyanko in Derevyanko (ed.), op. cit., 103-104.

⁹⁷ Kulish in Kulish, Solodovnik et al., op. cit., 44.

⁹⁸ Speech of Comrade R. Ya. Malinovskiy, XXIII s"ezd Komm. Partii Sov. Soyuz, I, 411.

⁹⁹ Kasatonov in KZ, July 30, 1967, p. 1.

¹⁰⁰ Capt. 2nd Rank A. V. Basov in Piterskiy (ed.), op. cit., 544-545, 552.

¹⁰¹ Gorshkov in Pravda, July 31, 1966; Gorshkov in MS, No. 5, 1966, p. 13 and No. 2, 1967, p. 20; Egorov in Sovetskaya Rossiya, July 30, 1967, p. 3; Fleet Adm. V. Kasatonov, "Ocean Guard of the Motherland," KZ, July 28, 1968; KZ correspondent, "A Grand Meeting in Moscow," ibid.; Gorshkov, "On Ocean Frontiers," Pravda, July 28, 1968; Gorshkov, "The Fatherland's Ocean Guard," Pravda, July 27, 1969; Rear-Adm. K. A. Stalbo in Zakharov (ed.), Istoriya voenno-morskogo iskusstva, 531, 565, 567; Grechko Order of Day, Pravda, July 26, 1970; Editorial, "The Motherland's Ocean Guard," KZ, July 26, 1970; Egorov, "The Motherland's Ocean Outpost," Sel'skaya zhizn', July 26, 1970.

¹⁰² The last reference I have to a front-rank strategic role for the navy appears in a work signed over to the press in March 1971; Azovtsev, V. I. Lenin i Sovetskaya voennaya nauka, 286, 297.

However, a front-rank military-strategic role for the navy apparently lasted only from the XXIII Party Congress in 1966 to the XXIV Congress in 1971.¹⁰³ The first evidence of a change that I have observed occurred in that year's Navy Day literature, when both Marshal Grechko, writing in the navy's own journal, and Admiral Gorshkov, writing in *Pravda*, both employed the same formula: the Strategic Missile Troops and the navy's SSBNs, as before, were "main instruments for deterring the aggressor," but nothing was said of them also being main instruments for decisively defeating the enemy.¹⁰⁴ It's not that this expression is out of fashion; "main instrument" status is still attributed to the strategic missile troops for both deterrence and defeating the enemy, when these troops are discussed alone.¹⁰⁵ When their capabilities are discussed together with the other branches of the armed forces, the stress is on the joint primacy of missile troops and SSBNs in deterrence, but the missile troops alone are considered to be a "foundation of the combat might of the armed forces."¹⁰⁶

It is something of a paradox. In the past, as the Soviet Navy increased its SLBM potential, both its military-political and its military-strategic roles expanded *pari passu*. Since 1971 this SLBM potential has continued to improve, in quality as well as in quantity; and yet the national oborona mission has been elevated to the main task, at the same time that the navy was downgraded from a "main" or "most important" instrument of strategy to the status of a secondary instrument, i.e., as Admiral Novikov puts it, "an important (*sic*) instrument for accomplishing strategic tasks."¹⁰⁷ Moreover, when these strategic tasks are treated by naval writers in Navy Day or other semi-official statements (as opposed to military-scientific works), they seem to involve combating the enemy fleet rather than strategic SLBM strikes against the enemy interior.¹⁰⁸ This is all the more amazing in view of the lower priority now put, as we shall see, on the mission of combating the enemy fleet. One could come to the conclusion that the elevation of "national oborona" to the status of a main task has involved the swallowing up of significant resources formerly devoted to both strategic tasks—operations against the shore and operations against the enemy navy.

CONTENT OF THE NAVY'S MAIN NATIONAL DEFENSE TASK

What is this "national oborona" task, that it could have such effects? Gorshkov treats it on four occasions, in addition to the final, one-page summary of his series. His first two treatments occur earlier in the series itself—in the penultimate and final articles, both devoted

¹⁰³ Grechko in MS, No. 7, 1971, p. 6; Gorshkov, "Our Ocean-Going Nuclear-Missile Navy," *Pravda*, July 25, 1971, p. 2. For a different interpretation of Grechko's article, asserting a divergence from the thrust of the Gorshkov series, see McGwire in McConnell, Weinland and McGwire, *op. cit.*, 22, 36.

¹⁰⁴ V. Tolubko, "The Motherland's Reliable Guard," *Sel'skaya zhizn'*, Feb. 23, 1973, p. 2.

¹⁰⁵ Grechko in KZ, Dec. 17, 1972; "The Soviet Fatherland's Missile Shield," KVS, No. 21, 1974, p. 32.

¹⁰⁶ Engr. Vice-Adm. V. Novikov, "Guardian of our Sea Frontiers," *Vodnyy transport*, July 27, 1974, p. 3.

¹⁰⁷ Gorshkov, "On the Seas and Oceans," *Pravda*, July 30, 1972; Kasatonov, "On Guard Over the Fatherland," KZ, July 28, 1974.

¹⁰⁸ Gorshkov in MS, No. 12, 1972, pp. 14–15.

to the modern era. He also deals with this theme in a 1974 Navy Day article, with the passage in question recently repeated almost word for word in a Soviet English-language journal.

The penultimate article of the Gorshkov series is entirely devoted to peacetime naval diplomacy; in it Gorshkov presents the national oborona task strictly as a matter of peacetime deterrence, offsetting Western politico-military pressure, and so forth. There can be little doubt of this interpretation of Gorshkov's treatment—and it fits with what we might expect, insofar as tasks of the armed forces in the system of national oborona seem to be politically oriented and deterrence would constitute, in the Soviet view as well as ours, a military-political task. Early in the article Gorshkov stresses the effectiveness of the U.S.S.R.'s "economic might and oboronnaya strength" in preventing a new world war.

Among the main means insuring the Motherland's high oborona capabilities, one must name above all the strategic missile troops and the navy. . . . Aviation, the ground troops and other branches of our valiant armed forces are, to a large extent, [also] means for deterring the aggressive acts of the imperialists. . .¹⁰⁹

Later on in this same article Gorshkov dilates at some length on the use of imperialist navies as "instruments of policy in peacetime"; through naval "demonstrations," they "put pressure" on the Warsaw Pact and carry out "nuclear blackmail." However, the Soviet Navy has also emerged as "one of the instruments of policy" of the U.S.S.R.; for the "deterrence" of military adventurers and to counter "threats" to Russian security, the party and government have created "strategic counterforces of oborona,"¹¹⁰ the foundation of which consists of the strategic missile troops and the navy. The Soviet Navy, he says, constitutes—

a powerful instrument of oborona on ocean axes, a formidable force for deterring aggression. . . . And this, its main task—national oborona against attacks by the aggressor from ocean axes—the navy is successfully fulfilling together with the other branches of the Soviet armed forces. . . .¹¹¹

This whole discussion, only a part of which has been quoted here, strongly suggests that the "national oborona task" of these "strategic counterforces of oborona" is not a counterforce strike against the opponent's means of nuclear attack, but a countering or neutralizing of the threat to the Soviet homeland by a matching threat to the American homeland.¹¹²

Gorshkov takes up the national oborona theme again in the last section of his final article in the series. While the plan for this section is obscure, it seems to be divided into two parts. The first part seems oriented on the external determinants of naval development—the policy, military doctrine and economic-technological potential of the

¹⁰⁹In his analysis of the Gorshkov series, McGwire (in McConnell, Weinland, McGwire, op. cit., 22) contends that its only use of authenticating signals such as "the will of the Central Committee" concerns policy which is already "clearly established" and does not extend to new departures, but he does not give any sources (one would do) for earlier references either to "strategic counterforces of oborona" or to "national oborona" as the Navy's "main task."

¹¹⁰MS, No. 12, 1972, pp. 20–21.

¹¹¹See McConnell, op. cit., 95–96.

¹¹²MS, No. 2, 1973, pp. 18–21.

Soviet state, and so forth—which pose the requirement for and facilitate the achievement of the navy's national oborona task.¹¹³ The second part deals with the “fundamental mission” of navies in general nuclear war, with a stress on the inner development of the navy and its combat and political training, all focused on the need for a high state of “combat readiness,” “readiness for the selfless zashchita of socialism.”¹¹⁴ In other words, it has occurred to me that we may be dealing first with the navy's role in the system of national oborona, governed by party principles of leadership of the armed forces, and then with the navy's role in the system of the armed forces, governed by party principles of military development.

Gorshkov begins the section with the statement that, given the need to strengthen “national oborona from sea axes,” the Warsaw Pact was strengthening its “seapower”—oceanography, the merchant marine, the “industrial” fleet for fishing and mineral exploitation, and the navy. The terminology not only suggests that the Soviets have a seapower policy tying its components into a coherent whole but that it is considered an integral part of military policy, the key decisions for which would be made by the Higher Defense Council. Gorshkov deals with each of the seapower components but insists that the “most important” one is the navy, which has been assigned the mission of “national oborona against possible strikes from ocean and sea axes,” as well as protecting state interests in the seas and oceans.¹¹⁵

Gorshkov's treatment of the national oborona mission early in the first part again seems to present it strictly as a peacetime military-political mission. He says the requirement for a powerful navy corresponding to the U.S.S.R.'s geographical position and its “political significance as a great power” became especially acute in the postwar period when the Warsaw Pact found itself encircled by a hostile coalition of maritime states posing the “threat” of a nuclear-missile attack from sea axes. The U.S.S.R. could not endure a situation where the United States, having encircled the Soviet Union, had not itself experienced an “analogous danger.” The party and the government—again the authenticating signal—fully appreciated the need to “deter” the enemy's aggressive aspirations. Continuing their “policy of peaceful coexistence” and the “prevention” of a new world war, they have built up powerful armed forces, including the navy, capable of “countering” any of the enemy's “intrigues,” including those on ocean axes, where the simple “presence” of the Soviet Navy alone poses for a “potential aggressor” the requirement “to solve those very same problems he meant to create for our armed forces.”¹¹⁶ Again, we seem to have a purely peacetime military-political logic with no hint of any wartime application, military-political or military-strategic.

However, from the beginning it has struck me as unlikely that a peacetime task could be the main task for a branch of the armed forces. Moreover, how could a peacetime strategic-deterrence task

¹¹³ *Ibid.*, 21–24.

¹¹⁴ *Ibid.*, 18–19.

¹¹⁵ *Ibid.*

¹¹⁶ McConnell, *op. cit.*, 80.

detract significantly from the performance of strategic wartime tasks? Gorshkov may be giving a hint of the solution later on in this first part when he seems to be treating "deterrence" literally, not as a peacetime task, but as a "role in modern war." This passage is all the more arresting in that it is precisely here that he asserts the superiority of the SSBN—its "great survivability"—in comparison with ICBM launch facilities, whereas it is his normal practice (in line with the practice of other Soviet writers) to acknowledge the primacy of the strategic missile troops in "peacetime" deterrence. And the distinction makes sense in both cases. The much larger number of ICBM's are available along with SLBM's for peacetime deterrence, survivability not being central in a pre-emptive or launch-on-warning posture, whereas only SLBMs, precisely because of their "great survivability," would be available for "deterrence" in war.¹¹⁷

In his 1974 Navy Day article, Gorshkov again takes up the national oborona theme. The passage is more than ordinarily obscure but since Gorshkov repeats it again almost word for word in a more recent work, we can assume that he means what he says and, if elliptical, he is deliberately so. Let me quote the relevant passage and see if we can make sense out of it.

Our navy has always had two main tasks—combat against the enemy fleet and operations against the shore. For long centuries the first of these tasks had priority. But, beginning with World War II, the situation began to change. Now, if we are to judge by the developmental tendencies of navies and their weapons, the main fleet mission is coming to be operations against targets on land.

Therefore, national oborona against an attack from the sea is acquiring for our armed forces an even more important significance. This is again the result of the development of submarines, which in a series of navies are now coming forward as the main platform for strategic nuclear-missile weapons.

Of course, the task of combating the enemy fleet is also still with us. . . . If required, Soviet navy-men know how to solve both these tasks successfully.¹¹⁸

First, Gorshkov tells us that conducting operations against the shore is edging out operations against the enemy fleet as the main naval task. "Therefore," he says, national oborona against an attack from the sea is acquiring greater importance, due to SSBN development in a "series of navies," which may or may not include the U.S.S.R. but in any event includes countries other than the U.S.S.R. It would be logical to assume from this that national oborona might be a strategic-defensive task against SLBM platforms but, no, this cannot be, first because the strategic-defensive task would come under the rubric of combating the enemy fleet and he has already told us that this mission has been downgraded rather than elevated, and second because he then immediately informs us for good measure that the task of combating the enemy fleet "also" remains, ruling out any possibility that national oborona against an attack from the sea involves combating enemy SSBNs.

¹¹⁷Gorshkov, "Soviet National Sea Power," *Pravda*, July 28, 1974; Gorshkov, "The Navy of the Soviet Union," *Soviet Military Review*, No. 6, 1975, p. 5.

¹¹⁸Sokolovskiy (ed.), *Voennaya strategiya* (3rd ed.), 78, 247, 359; Strokov in Strokov (ed.), op. cit., 595; Dudin and Listvinov in Kulish, Solodovnik et al., op. cit. 98.

We seem to be left with only one conclusion—that the national oborona task somehow comprehends Soviet naval operations against the shore. We feel this to be the case, for one thing, because the navy's main task was designated as national oborona in the Gorshkov series and as operations against the shore here, and clearly there is no implication of a downgrading of national oborona, since he speaks above of its "even more important significance." For another thing, he addresses first the "two tasks" of operations against the shore and combating the enemy fleet, then the two tasks of national oborona and combating the enemy fleet—and even refers to the latter set as "both these tasks." In other words, national oborona does not appear to constitute an additional, third task.

We have progressed perhaps but, even with this firmer footing, are we not worse off than before? For however much national oborona involves operations against the shore, it is still a "defense" task, defense against attacks from the sea. It would be tempting to evade our very real dilemma by the hypothesis that operations against the shore might include attacks against enemy naval bases, from which ships can sally forth to attack the U.S.S.R. from the sea, but this would be wrong since, as we have already shown, operations against the enemy fleet include attacks against vessels in their bases as well as at sea. In other words, operations against targets on land involve deep strikes, strikes of general-state significance, rather than of specifically naval significance. But this is absurd, for there is not a single such nonnaval target on land that I can think of which, if not interdicted, could mount an attack on the U.S.S.R. from the sea—and there can be no question of an error in expression here, since Gorshkov tells us repeatedly, both in the series and in his Navy Day article above, that it is only attacks from the sea that concern him, attacks specifically by the SSBNs which have appeared in a "series of navies." Moreover, in the many Soviet discussions of damage-linking strategic strikes that I have collected, all such strikes are treated as serving the cause of national zashchita rather than national oborona.

Wriggle as we will, we are back again to deterrence as the content of the national oborona task, for it is only as an instrument of deterrence that operations against the shore—or, rather, the capacity and the readiness to conduct such operations—can protect one against attacks from the sea. But we already knew from the Gorshkov series that national oborona at least included deterrence (i.e., the entire panoply of military-diplomatic measures—deterrence proper, offsetting and applying military-political pressure, negotiating from a position of strength, enhancing the U.S.S.R.'s military-political prestige, etc.). There is, however, this difference: whereas in the series the context was always peacetime deterrence whenever Gorshkov directly addressed the national oborona task, the passage above has a wartime flavor, since the only "other task" that "remains," along with that of national oborona, is the mission of "combating the enemy fleet," which is clearly a military-strategic assignment within the system of the armed forces and if there were another assignment of significant scale within that system he should have mentioned it. In other words, "national oborona against an attack from the sea" amounts to the

renunciation of operations against the shore on the condition that one's opponent practices the same restraint, "deterrence" as a role "in peacetime" and as a "role in modern war," but deterrence also as a method of peacetime and intrawar bargaining and for ensuring a favorable "political" solution to the armed struggle. To ensure the viability of the wartime deterrent, the SSBN must be protected, the resources for which may be partially or entirely drawn from the mission of combating the enemy fleet; hence its downgrading. However, Gorshkov seems to be saying that this involves no substantial loss, due to the "great survivability" of the SSBN, Western as well as Soviet, and to the poor showing of ASW against modern nuclear submarines.

At any rate, this is the hypothesis to be tested. Although a "main task," we do not know how many SLBMs are to be withheld. It seems unlikely that all would be withheld. Presumably the decision to withhold was partially triggered by the imminent deployment of the D-class SSBN with the SS-N-8 and therefore perhaps only these missiles will constitute the military-political reserve. This would account for the enhanced importance of the navy in the system of national oborona, but since these are additional missiles, not reallocated ones, it does not account for the seemingly reduced importance of the navy as an instrument of strategy. I am not fully persuaded that this reduced strategic importance can be attributed entirely to the apparent downgrading of the navy's antiSSBN mission ("combating the enemy fleet"). The question then arises: was the withholding decision also linked to the imminent deployment of the SS-N-13 missile, which has a capability against surface ships at sea? If the Soviets wanted to hold back a portion of their Y-class boats, then a part of the Yankee SLBM inventory could be replaced with SS-N-13 missiles, giving a capability against surface ASW forces. This would support the initial "breakout" from home waters and greater "combat stability" on the open oceans.¹¹⁹ I have nothing concrete to go on here; it only seems a reasonable hypothesis.

¹¹⁹I am indebted to N. B. Dismukes for this suggested solution.

OCEAN POLICYMAKING IN THE SOVIET UNION: BUREAUCRATIC INTERESTS AND INTERACTION

(By Terese Sulikowski¹)

SUMMARY

The theory and formal organization of the Communist Party of the Soviet Union and the Soviet government provide for and even require unified policy on ocean affairs and on any major issue. A hierarchical policymaking structure is set up to consider the multiple components of ocean policy, such as naval, merchant shipping, fishing, offshore mining, scientific research, and water pollution aspects. Ideologically, the principles of party primacy and democratic centralism are maintained. The party is the authoritative source of values. The government has the legal powers for enforcement, and the ministries manage their respective fields. This formal centralization and coordination of Soviet ocean policy differs sharply from that of the United States or any Western nation. The interplay of interests and promotion of individual or group goals is officially denied in the Soviet Union.

However, the actual organization of Soviet ocean policymaking and the bureaucratic operations involved in ocean uses are far from unified, centralized, or coordinated. The decisionmaking behind ocean policy is fragmented with various institutions commanding marginal spheres of authority. The role of the party directive has been degraded. The need for technical knowledge and expertise is very evident in ocean affairs. Most ocean issues in the Soviet Union have not been crisis issues and are resolved through the standard operating procedures of the bureaucracy. Policies are frequently the result of bureaucratic infighting or of institutions' independent and uncoordinated activities.

Usually, by the time ocean issues as major policy matters reach the top policymaking levels in the party, their parameters are drawn and the choices defined. Policy debates are allowed to take place, though at times they are settled by the intervention of the top leadership. Admiral Gorshkov, for example, was permitted in the early 1970's to argue for and against established policies; whereas Khrushchev removed the Chief of Naval Operations Admiral Kuznetsov because he argued against naval cutbacks. Similarly, Sholokhoff, a famous writer, participated in a public environmentalist attack against the Minister of Fisheries in 1966 for his role in the pollution of Lake Baikal. Even where the party does act to issue guidelines or directives, the results may be ambiguous. Implementation is often the heart of the policymaking process.

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In viewing the Soviet policymaking process, it should be kept in mind that the behavior of the top Soviet echelons has changed over time. Stalin made decisions personally on both major and minor issues. Khrushchev's power to take independent initiatives varied during his tenure. Under Brezhnev, the entire Politburo membership has become more involved in decisionmaking. At the same time, decisionmaking authority is being increasingly dispersed to technical experts outside the central party structure.

INTRODUCTION

Soviet ocean uses have increased significantly in the postwar period. Ocean uses and maritime interests have been an important consideration in Soviet domestic economic development. Large resource investment has taken place, resulting in improved technical capabilities and expanded areas of operations. The Soviet Union is now the second world naval power, second in world fishing catch, sixth in shipping tonnage, and conducts extensive oceanographic research. The Soviets have shown interest in developing the potentially large offshore oil and gas deposits, and have studied manganese nodule placements and mining techniques. In addition, they exhibit environmental interests and have taken water pollution control measures.

Soviet ocean policy is the result of these various maritime interests, as well as the larger domestic and foreign policy concerns.² Soviet ocean policy is formed on the basis of:

- (1) individual ocean user preferences and goals;
- (2) overall domestic priorities, goals, and economic resources;
- (3) foreign policy goals and strategies; and
- (4) international law of the sea issues.

Soviet ocean policy formulation involves multiple considerations of strategic, political, and economic requirements. All military planning, for example, takes place within a budgetary context. Decisions taken on naval expansion and forward deployment of the fleet may be motivated by political and strategic conceptions, but are also evaluated in economic terms. Policy and economic considerations are also mixed in the case of Soviet maritime fleet development. The extensive growth of the maritime fleet was probably generated both by the desire to build up political and strategic power and to maintain flexibility; but also by the objective of conserving foreign exchange in the face of growing foreign trade and increased chartering of foreign ships. The large Soviet investment in an extensive distant water fishing fleet involved economic considerations, but resulted in clashes with expanded coastal state jurisdiction and foreign policy considerations.

Soviet ocean policy formulation inextricably joins domestic and foreign concerns. The management of ocean uses is a complex domestic economic and political problem and could be analyzed as a case of postwar Soviet development in terms of economic management and resource allocation. Investment priorities and performance are basic ocean management issues. The numerous Soviet ocean activities also have to be planned and coordinated with respect to other national programs; and domestic politics and the interaction of politi-

²See William E. Butler, "The Soviet Union and the Law of the Sea" (Baltimore: The Johns Hopkins Press, 1971). Terese Sulikowski, "Soviet Ocean Policy," *Ocean Development and International Law Journal*, 3 (1, 1975): 69-73.

cal interests increase the complexity of ocean management. In the United States, for example, marine activities did not take place in isolation, but were intertwined with dozens of other nonmarine issues and shared the same stage.³

The international political environment is also a consideration in Soviet ocean policy formulation. Soviet ocean objectives for fisheries, shipping, or deepsea mining, are just a few of the items that conflict with other Soviet foreign policy preferences in relations with less developed countries. The larger foreign policy preferences are a part of the ocean policymaking process. The growth of Soviet ocean uses has taken place as worldwide ocean uses have intensified and expanded. Few areas of Soviet activity have such explicit linkages between domestic programs and international issues. Ocean uses, by nature, interact with the outside world; and the need to participate in international forums and choose appropriate domestic objectives and foreign policy responses have been an integral component in Soviet ocean development.

Our knowledge of the Soviet ocean policymaking process is both superficial and incomplete. The unified policymaking image the Soviets like to promote is readily accepted in the West. With rare exceptions, the Soviets do not admit to diversity of national interest. The lack of a coherent Soviet discussion of the ocean policymaking structure and processes, the difficulty in dealing with Soviet publications, and the popular preconceptions one has in approaching a communist system reinforce the image of a unified ocean policymaking structure in the Soviet Union under the leadership of the Communist Party. Detailed examination of Soviet professional periodicals and publications in the ocean field, however, reveals a large number of institutions with entrenched and conflicting interests and overlapping jurisdiction.⁴ Exclusive central control over a broad range of management and policy issues does not exist. Decisionmaking authority has been dispersed to expert and local groups, and policy fragmentation has resulted. The numerous Soviet press articles and publications reflect this in the extensive public discussions and advocacy of divergent policy preferences and proposals.

This article will present an outline of the variety and structure of Soviet ocean institutions and indicate possible interaction of Soviet ocean interests. It will not analyze how decisions are made or provide a detailed description of institutional or personal policy preferences. The interplay of ocean politics will be analyzed in a subsequent study.⁵

³ Edward Wenk, Jr., "The Politics of the Ocean" (Seattle: University of Washington Press, 1972), p. 368.

⁴ The basic resources used for this study are the Soviet journals published under the auspices of the various ministries and agencies that can be classed as ocean users: Rybnoe Khoziaistvo (Ministry of Fisheries), Morskoi Flot (Ministry of Maritime Fleet), Morskoi Sbornik (Navy), Vodnyi Transport (Ministry of the Maritime Fleet, Ministry of the River Fleet RSFSR and the Central Committee of the Union of Maritime and River Fleet workers), Sudostroennii (Ministry of Shipbuilding), and Okeanologiya (U.S.S.R. Academy of Sciences, Oceanographic Commission). These journals were reviewed for approximately a 10-year period. A survey of more general Soviet publications was also made. These included S. Sh. A. (U.S.S.R. Academy of Sciences, Institute for the Study of the U.S.A.), Mirovaia Ekonomika i Mezhdunarodnoe Otnoshenie (U.S.S.R. Academy of Sciences, Institute for the Study of the World Economy and International Relations), Ekonomicheskaiia Gazeta (CPSU Central Committee), Planovoe Khoziaistvo (Gosplan), Pravda (CPSU Central Committee), and Izvestiia (U.S.S.R. Council of Ministers). In addition, some of the major texts on ocean policy and management were analyzed.

Author's note: Inconsistencies in the transliteration of Russian words throughout the text are due to the author's use of the Library of Congress transliteration system, while other sources have used the U.S. Board of Geographic Names system or other methods.

⁵ This article is part of a larger study "Ocean Politics in the Soviet Union" being done as a Ph.D. dissertation for the Johns Hopkins University School of Advanced International Studies.

The formal unification, centralization, and coordination of policymaking in the Soviet Union would indicate a unified decisionmaking center for most policy issues. The Communist Party of the Soviet Union (hereafter, CPSU) is the sole political party, and pluralism is not allowed. The basic principle of CPSU organization is democratic centralism. The party seeks strict discipline and the decisions of higher bodies are obligatory for lower bodies. It claims to be the authoritative source of values and the oracle of the one correct ideology which is imposed on citizens through education and indoctrination. The party's role in leadership (*rukovodstvo*) and guidance (*napravlenie*) is often emphasized. The party is also to supervise, expedite and mediate, work in personnel selection and education, propaganda and morale building.

The actual powers of the CPSU are more limited than its formal structure indicates. The difficulties in planning and managing a complex economy and society are witnessed both by the criticism and self-criticism of administrators in the Soviet Union, and the constant reorganizations and attempts to improve the system. The Soviet Union has a GNP of \$660 billion, a little more than half that of the United States.⁶ Coordinating and directing an economy of this size, with 200,000 enterprises of "census size" and about 20 million distinct products is an enormous task.⁷ Centralized policy planning is inevitably difficult when a multitude of considerations and interests must be taken into account. The process is further encumbered when external political and economic forces must be evaluated.

Disagreements on management and policy issues extend throughout the CPSU and have been documented in a number of cases, even among the top leadership.⁸ Politics, by nature involves conflict and party members do not necessarily share a single view on policy problems. The ideologically appealing monopoly centralization contradicts the requirements of a modern industrial state facing complex and difficult decisions that bring expert opinion and interest groups into play. In addition to the diversity within the Communist Party and outside interests, the varied Soviet government bureaucracy exerts policy influence. Soviet ministries are a source of technical expertise and information, and have considerable powers in their sectors over the formulation and implementation of decisions.

Although the Communist Party may have the main role in defining policy and determining directions of development, the government

⁶U.S. Congress Joint Economic Committee. Allocation of Resources in the Soviet Union and China. Hearings before the Subcommittee on Priorities and Economy in Government, 94th Cong., 1st sess., April 1974, p. 5.

⁷Abram Bergson. "Planning and Productivity Under Soviet Socialism" (New York: Carnegie Mellon University, 1968), p. 67.

⁸Slusser, in his study of the 1961 Berlin crisis found "evidence of a power struggle more intense, more violent and more divisive than had previously been suspected" and which resulted in the glaring inconsistencies and sudden policy shifts. Robert Slusser, "The Berlin Crisis of 1961" (Baltimore: Johns Hopkins University Press, 1973), p. ix. On policy and power struggles, see, also Robert Conquest, "After the Fall: Some Lessons," *Problems of Communism*, 14 (Jan./Feb. 1965): 17-22; S. Dinerstein, "War and the Soviet Union" (N.Y.: Praeger, 1962); Wolfgang Leonhard, "The Kremlin Since Stalin" (New York: Praeger, 1962); Carl A. Linden, "Khrushchev and the Soviet Leadership 1957-1964" (Baltimore, Md.: The Johns Hopkins Press, 1966); Michel Tatu, "Power in the Kremlin", trans. Helen Katel (New York: Viking Press, 1969).

exercises influence at several points and is not totally subservient to party guidance. Presently there are nearly 100 All Union, Union Republic, and Republic Ministries that run the country. The Soviet ministries have considerable powers through the control of operations that capitalist nations usually leave to private enterprise. The concentration of power in state ministries has led to the development of fiefdoms and the pursuit of self interest. Administrators of the state system assume complete responsibility for their sector's performance, and participate in policy decisions. They draft plans and proposals for higher level action that incorporate their personal preferences and departmental needs. They issue the bulk of regulatory acts which may or may not conform to existing laws and edicts.⁹ Representatives of these functional institutions have differing objectives and stakes in ocean policy.

The ministries also interact in different phases of the policymaking process. The ministries and state agencies are a source of expertise, providing valuable technical and analytical information in making decisions. The appropriate selection of one alternative among several choices under conditions of scarcity requires estimates of the existing situation and possible results. The analysis of complex variables requires "scientific" evaluation and the contributions by specialist from ministries, departments and institutions are frequently noted.¹⁰ Information input can be used both in choosing a policy and evaluating its performance. The extensive government system employs a variety of specialist interests that will promote narrow, self serving goals. Information feedback on policy performance can also be distorted by agency or ministry bias. The party's inability to coordinate inputs and "perform specialist functions" has decreased its political power and increased the power of the state administrative system.¹¹

The tension between centralization and regional or specialist participation has been a theme in Soviet policymaking. The most important foreign and domestic policy questions and crisis issues in any country will be decided at the highest levels of political power. Ocean issues at times involve important policy questions, and in a number of instances, decisions have been made at the top political levels. For the most part, however, ocean management and policy have not been crisis situations and policy options are defined and decisions taken at lower administrative levels. Ocean uses are a high technology area and technical questions are approached through normal bureaucratic channels. These procedural questions, in turn, carry important political and economic implications.

The responsibility for ocean management and policymaking in the Soviet Union is dispersed over a broad Communist Party and government structure. Soviet ocean users account for a large and diverse set of interests. In making decisions, extensive information is required and a wide variety of considerations must be taken into account. These factors, along with the tendency of departmental proliferation

⁹ Jerome M. Gilson, "British and Soviet Politics: Legitimacy and Convergence" (Baltimore: The Johns Hopkins University Press, 1972), p. 141.

¹⁰ F. Kotov (Deputy Chief of a division of U.S.S.R. Gosplan) and I. Prostiakov (Chief of a U.S.S.R. Gosplan division), "The Participation of Scientific Organizations in the Development of National Economic Plans," *Planovoe Khoziaistvo* December 1973: pp. 17-25.

¹¹ David Lane, *Politics and Society in the U.S.S.R.* (London: Weidenfeld and Nicolson, 1970), p. 224.

in bureaucratic organization lead to the establishment of an elaborate organizational structure and decisionmaking procedure in Soviet ocean policy.

In the United States, this structure includes 23 agencies in the executive branch and 16 committees in Congress that are concerned with ocean affairs.¹² In addition there are many corporate, business, and private interests. Management and policymaking in the United States is correspondingly complicated, but does not seem to approach the multilayered organizational system encountered in the Soviet Union. Soviet institutional involvement in ocean affairs includes departments of the Communist Party at the central and local levels, ministries and agencies of the Soviet government, and outside advisors. Ocean management and policymaking is not the simple extension of the Communist Party line, but the result of multiple interactions within and between the party and government. Although this does not imply that the complexities of the ocean management problem are fully or adequately understood and reflected in Soviet policy, it does emphasize the existence of a number of diverse interests and institutions in the ocean field that participate at various levels of the decisionmaking process.

Ocean policymaking and management in the Soviet Union involves the Political Bureau of the Central Committee as the supreme power, the Secretariat of the Central Committee, the Plenums of the Central Committee, and the Congress of the CPSU as organizations lower in the Communist Party hierarchy. In addition to the Communist Party, there is heavy government participation in ocean decisionmaking. Three ministries with their subsidiary administrations and institutions are directly and almost exclusively involved in ocean uses. Numerous other ministries have important indirect interests in the oceans field. A number of state committees take part in planning or various stages of oversight. Scientific research institutes under the ministries, higher educational institutions, and the Academy of Sciences system also promote their interests in ocean policymaking. Private individuals and interest groups, primarily ecological, must also be taken into account.

The structure of Soviet ocean management and policymaking has not been constant over time. There have been countless reorganizations in an attempt to improve system operations. Many of these changes parallel the overall administrative reorganizations in the Soviet Union. Others are a response to the expanded ocean activities and international concerns. The reorganizations can be viewed as similar to the phenomenon that Washington witnesses in ocean management which believes that "sweeping out old structures is tantamount to reform and progress."¹³ The periodic recurrence of reorganizations is testimony that they do not achieve their objectives.

The U.S.S.R. has also been an active participant in international discussions on maritime policy, and the United Nations Law of the Sea sessions over the years have had a significant impact on Soviet ocean policy formulation. The U.N. proceedings can be seen as both a catalyst and as a context for Soviet institutional responses.

¹² Ann L. Hollick, "National Ocean Institutions: Research Needs," *Ocean Development and International Law Journal*, 3 (2, 1975): pp. 155-170.

¹³ Wenk, p. 332.

A vigorous internal discussion has been generated by the need to react to changing international events, and to develop a national position on maritime issues. The Soviet Union almost always presents a unified policy front in international discussions, but much of this is due to the nature of the Soviet foreign service which is designed to represent the state as a whole, rather than a particular ministry or interest. Worldwide concern over ocean issues, however, has forced the Soviet Union, along with other nations, to develop a new generation of ocean policy. The exposure to international issues has also introduced a new element in the domestic debate over resource allocation and appropriate ocean policies. An individual or group contending for domestic power or influence can legitimately take the international route to promote actions or policies. Soviets frequently use the examples of foreign experience and policies as justification for a particular program. The increased international contacts provide Soviet specialists and politicians with additional information on outside activities and an exchange of experience.

The exposure to the international law of the sea discussions and the need to develop national positions also transforms domestic allocation controversies into a competition over access to foreign policymaking. The composition of Soviet delegations to United Nations Law of the Sea sessions indicates both the "constituents" in the domestic ocean policymaking process, and institutional interest representation at the international level. In the course of the United Nations Seabed Committee debates and the Law of the Sea Conference proceedings, Soviet delegations have included representatives affiliated with a wide range of ministries and agencies concerned with ocean management and policy. Delegates were affiliated with the Ministries of Foreign Affairs (particularly the Treaty and Legal Department), Fisheries, Maritime Fleet, Geology, and Defense (Navy), as well as the State Committee for Science and Technology and the U.S.S.R. Academy of Sciences.¹⁴ One can speculate that the extensive institutional representation takes place in order to provide technical expertise at the United Nations discussions and for purposes of liaison with domestic institutions on international developments.

The Communist Party remains the dominant, but not the single influence in Soviet policymaking. Decisions and their implementation are based on both national and specific interests. The technical and specialized decisions regarding ocean developments require information input. The structure of Soviet decisionmaking on ocean policy reflects this complexity.

THE COMMUNIST PARTY AND OCEAN AFFAIRS

THE POLITBURO OF THE CENTRAL COMMITTEE

The theory of the Communist Party leadership states that the highest party organs, in descending order, are the Congress of the Communist Party of the Soviet Union, the Central Committee Plenum, the Central Committee Politburo, and the Central Committee Secretariat. The actual power distribution is nearly reversed, with the Politburo generally acknowledged as primary, and the Secretariat, Central Com-

¹⁴ See appendix.

mittee Plenum, and Party Congress following in importance. The involvement of these bodies in ocean policymaking and ocean issues is difficult to determine because of the lack of discussion and data. Ocean interests and possible approaches to the ocean decisionmaking process can be inferred, however, on the basis of various studies conducted on other issue areas, and by using the scant data that is available on ocean policy formulation.

The Political Bureau of the Central Committee of the CPSU, the Politburo, is an elusive organization and its precise relationship to ocean policymaking is uncertain. It is known that the Politburo deals with a wide range of foreign and domestic policy matters and that technical considerations play an important role because of the party's overview of economic and social planning. The Politburo has taken action on major economic goals and foreign policy issues.¹⁵ It also, on occasion, intervenes in basic management and production tasks.¹⁶ Our information does not indicate what type of issues are subject to detailed discussions, or at what stage they are considered. It can be speculated that ocean policy formulation will not be a matter of continual Politburo review, but will occasionally arise as a major issue or as part of broader foreign policy considerations.

In describing Politburo functions, it should be kept in mind that there have been many and extreme changes in its exercise of power over the years of Soviet rule. Stalin centralized and embodied Soviet policymaking. Beginning in 1934, he conducted a bloody coup against the CPSU and deliberately emasculated and compartmentalized the Politburo and assumed the right to make decisions.¹⁷ Although Khrushchev also took a great deal of personal initiative on both major and mundane matters, the Politburo revived after Stalin's death. The Politburo (then called Presidium) acted in a more collegial manner and Khrushchev's power varied over time, depending on the strength of his opposition and the flexibility of the administrative structure. Khrushchev stated in an interview that the Politburo met weekly to discuss matters. Sometimes the discussions became very heated, and a vote would be taken on issues if unanimity could not be reached.¹⁸

Under Brezhnev, the Politburo system is one of fuller collegial responsibilities. Its fifteen voting and seven consultative or candidate

¹⁵ There is a long list of examples, such as the virgin lands program, Khrushchev's promotion of the chemical industry, and SALT. On this last issue see Raymond L. Garthoff, "SALT and the Soviet Military," *Problems of Communism* 24 (January/February 1975). Garthoff states that the Politburo made the key decisions to enter SALT and determined all major Soviet positions. During the intensive negotiations on SALT in May 1972, the Politburo met at least four times during 5 days, p. 29.

¹⁶ O. K. Antonov writes "Have you noticed that the Party has several times rolled up its sleeves, gone after one industry or another, and dragging it out of the morass of gradualism, given it a powerful push in a direction that the country required?" In "Why does it take a fight to modernize output?" *Znamiya* (February 1957) pp. 148-162. Trans. in *Current Digest of the Soviet Press*, 9 (16, 1957). Cited by Arthur J. Alexander, "R and D in Soviet Aviation" (Santa Monica, California: The Rand Corporation, 1970) R-589-PR, p. 27. Also, Khrushchev at one point said that "we" (presumably the Politburo) would be able to "shake" Smirnov, the new head of the State Committee for Defense Technology "... just as we used to shake Comrad Ustinov, who used to answer for the development of the defense industry." *Pravda*, 26 April 1973. Quoted by Werner G. Hahn, "The Politics of Soviet Agriculture, 1960-1970," (Baltimore: Johns Hopkins University Press, 1972), p. 110.

¹⁷ See "Khrushchev's Secret Speech (as released by the U.S. Department of State on June 4, 1956) in "Khrushchev Remembers," translated and edited by Strobe Talbott (New York: Bantam Books, Inc., 1970), pp. 672-673. Alexander Barmine also presents an account of Politburo work where there was only a veneer of collective activity and Stalin made decisions in the form of "proposals." In "One Who Survived" (New York: G. P. Putnam's Sons, 1945), pp. 212-228.

¹⁸ *Pravda*, cited by Gilson, pp. 147-148.

members are recruited from the state and party administrative structures and have career experience in different areas. Although the emphasis is on reaching consensus, Politburo members are politicians with responsibilities in other bureaucracies and have different policy perspectives and areas of expertise.¹⁹ One analyst concludes that Politburo members are accorded some deference by others when their area of specialty is under discussion.²⁰

Kirill T. Mazurov is the Politburo member most active in ocean issues. Mazurov holds a joint appointment and is also First Deputy Chairman of the Council of Ministers. He may deal with ocean issues in this latter capacity since he is charged with oversight of the Light and Food Industry as part of his government function. Mazurov has been frequently identified in his dual capacity as Politburo and government member in meetings with foreign representatives of fisheries, maritime, and U.N. Seabed Committee delegations.²¹ The Soviet Politburo may assign responsibilities in a specialized area to a single member and Mazurov may be in charge of preparing the agenda when ocean topics are considered at meetings. Even if this responsibility is not officially delegated, his expertise undoubtedly will carry over in Politburo discussions on those occasions when ocean issues are examined. Mazurov can be characterized as conservative on ideology and foreign policy and pragmatic and flexible on economic affairs.

Andrei Gromyko, as Minister of Foreign Affairs, would have special competence in Law of the Sea issues. The Ministry of Foreign Affairs conducts extensive work in this field, and Gromyko is probably both well informed and in close contact with legal maritime issues. It may be that even prior to his appointment to the Politburo in 1973 he was consulted or asked to participate in discussions as an expert on legal matters. The Minister of Defense can also be seen as a special representative of defense interests and would probably have technical competence in strategic and naval issues. Because of the ongoing ground force and naval rivalry, however, it is not obvious that he would be a proponent of the naval interests.

¹⁹ See for example, Hahn; Grey Hodnett, "Succession Contingencies in the Soviet Union," *Problems of Communism* 24 (March-April 1975): 1-21; Jiri Valenta, "Soviet Foreign Policy Decision-Making and Bureaucratic Politics: Czechoslovak Crisis 1968" (Ph.D. dissertation, Johns Hopkins University School of Advanced International Studies, 1975).

²⁰ Gilson, p. 150.

²¹ The following meetings between Mazurov and foreign maritime delegations have been identified: 1975: January 14, Mazurov received the President of the U.N. Law of the Sea Conference, Ambassador Amersinghe for discussion. TASS, January 15, 1975. Cited in "Foreign Broadcast Information Service (FBIS) Daily Report Soviet Union," January 15, 1975, p. A. 1. April 7, Mazurov received the General Secretary of the International Maritime Consultative Organization and they discussed problems of international cooperation in navigation. Moscow Domestic Service in Russian. April 7, 1975. In FBIS, April 10, 1975, p. A. 14. November 25, 1975, Mazurov received French merchant marine representatives. December 18, 1975, Mazurov received the Greek Minister of Merchant Marine in connection with an agreement on trade navigation. TASS, December 18, 1975. In FBIS, December 22, 1975, p. G.I. 1974: June 18, Mazurov met with the Norwegian Minister of Fisheries and they discussed Soviet Norwegian cooperation in the fishing industry and protection of fishery resources as well as other questions. Moscow Domestic Service in Russian. June 18, 1974. In FBIS June 20, 1974, p. E. 8. 1973: October 8-11, Mazurov participated in meetings with Tanaka and the Japanese delegation in the Soviet Union. Fisheries questions were on the agenda. The Minister of Fisheries was also present during some sessions. See Pravda, October 8, 9, 10, 11, 1973. Vodnyi Transport, November 1, 1973. October 26, the Japanese Minister of Fisheries, Agriculture and Forestry visited the Soviet Union to discuss questions of developing and strengthening cooperation in fisheries. He was received by K. T. Mazurov. Vodnyi transport, November 1, 1973. 1972: April 18, Mazurov received a Japanese fisheries delegation. Moscow Domestic Service in Russian. April 18, 1972. In FBIS April 20, 1972, p. C. 7.

The operating procedures of the Politburo remain an unanswered question. According to an interview with Brezhnev, the Politburo meets once a week with sessions lasting from 3 to 6 hours. Decisions are reached by consensus, but if there is disagreement, a special committee is set up to study the issue.²² Heads of departments can be invited to attend sessions by special invitation when policy questions under discussion concern them,²³ and ocean experts are probably invited when domestic or foreign maritime policy is considered. Many Western analysts see the Politburo operating under consensual compromises in an effort to avoid direct conflict and preserve a balance between members.

There is no description as to how issues are selected for discussion or on what basis decisions are made. Institutional procedures must be available for distinguishing between greater and lesser problems. Because of the limited personal staffs of the Politburo members and the potentially broad range of issues to be considered, many analysts have speculated that the Secretariat of the Central Committee is crucial in the screening and coordinating process. It is also thought that individual Politburo members have the prerogative of initiating discussion of issues.

The problem of complex issues also has an impact on the decision-making process. There are indications in the literature that ad hoc committees and commissions are widely used, and Brezhnev mentions the use of temporary committees when unanimous decisions cannot be reached.²⁴ Commissions can also be set up in the Central Committee to study questions and prepare recommendations.²⁵ Outside experts from the ministries and other agencies probably participate in this process.

There is little information on ocean policy formulation in Politburo sessions. Since ocean issues have involved important international and resource allocation problems, one can assume that as they become crucial they will be included in Politburo considerations. Maritime uses are also a part of broader foreign relations, as is apparent in the case of fisheries and Soviet relations with Japan, Cuba, Canada, or the United States, policies for naval expansion, and technical assistance programs and aid in maritime uses to third world countries. It can be speculated that ocean policy consideration in the Politburo occasionally takes place in the context of broader foreign policy issues.

The only public example of Politburo action in the field of ocean policymaking is the dismissal of the head of the navy, Admiral Kuznetsov, in 1955.²⁶ Stalin sought a powerful, balanced navy and in 1950

²²Theodore Shabad, "Brezhnev, Who Ought to Know, Explains Politburo," *New York Times*, June 15, 1973.

²³Garthoff, p. 29.

²⁴Shabad.

²⁵Abdurakhman Avtorkhanov, "The Communist Party Apparatus" (Chicago: Henery Regnery Co., 1966), p. 216. It is also felt that in the absence of specially setup committees, the government ministries and other subordinate bodies would receive extensive powers by default. Matthew P. Gallagher and Karl F. Spielmann Jr., "Soviet Decision-Making for Defense: A Critique of U.S. Perspectives on the Arms Race" (New York: Praeger, 1972), esp. pp. 28, 77, 86.

²⁶This is described in more detail in "Khrushchev Remembers, The Last Testament," trans. and ed. Strobe Talbott (Boston: Little, Brown and Co., 1974) pp. 19-28; Robert Waring Herrick, "Soviet Naval Strategy: Fifty Years of Theory and Practice" (Annapolis: United States Naval Institute, 1960) pp. 65-70. Michael McGwire discusses this and other changes in the naval building program in "Developments in Soviet Naval Policy: 1955-1973" (Paper, April 1973) and "The Turning Points in Naval Policy Formation," in Michael K. McGwire, ed., "Soviet Naval Developments: Capability and Context" (New York: Praeger, 1973).

reestablished an independent Ministry of the Navy and appointed Admiral Nikolai Kuznetsov as minister.²⁷ After Stalin's death the ministry was integrated into the Ministry of Defense and has since been subordinated to the dominance of the army officers.²⁸ Khrushchev drastically cut back the naval building program and focused on submarines. Admiral Kuznetsov was fired for his vigorous opposition and lobbying against the cutback. The choice of appropriate naval policy was linked with considerations of military strategy and economic resource allocation. The wider evaluation of the danger of war and the appropriate Soviet strategy were key components influencing naval policy. As the present Admiral of the Fleet Sergei Gorshkov recounts, "Unfortunately, we had very highly influential 'authorities' who felt that with the appearance of nuclear arms, the Navy completely lost its importance as a type of armed force. In their opinion all future wars could be decided without any participation from the Navy."²⁹ The decision on naval policy was also made in the context of scarce resources and their allocation. After the naval program cutback, shipbuilding resources were shifted to mercantile and fishing ship construction.³⁰

Similar divergent views arise frequently in the Soviet Union because of the complex nature of policy problems and the existence of a number of well defined opinions on major issues. The much analyzed series of articles by Admiral Sergei Gorshkov is a clear instance of the continuing discussion concerning appropriate naval policy and development.³¹ This push and pull of individuals and groups also takes place on other maritime issues.

THE SECRETARIAT OF THE CENTRAL COMMITTEE

The Secretariat consists of about 25 departments. There are nine Secretaries and the General Secretary with highly overlapping membership with the Politburo. Each secretary is responsible for a group of subjects and the entire Secretariat staff comprises several thousand party officials.³²

²⁷ The Ministry of the Navy (at that time People's Commissariat for the Navy) was integrated into the People's Commissariat for Defense in February 1946, and its standing relative to the Army was reduced. Admiral N. G. Kuznetsov who had advocated a stronger fleet was replaced as head of the Navy less than a year later (January 1947). See Jurgen Rohwer, "Superpower Confrontation on the Seas: Naval Development and Strategy Since 1945" (Beverly Hills/London: Sage Publications, 1975), pp. 11-12.

²⁸ The general staff, until 1972 was the preserve of the ground force generals. The first break was the appointment of Admiral S. M. Lobov as assistant chief of the general staff. Drew Middleton, "Soviet Generals Show New Style," *New York Times*, April 23, 1973.

²⁹ S. G. Gorshkov, "The Development of Soviet Naval Science," trans. *Morskoi Sbornik* No. 2, (1967): p. 19.

³⁰ Michael K. McGwire, "Soviet Maritime Strategy, Capabilities, and Intentions in the Caribbean" in "Soviet Seapower in the Caribbean," J. D. Theberge, ed. (New York: Praeger, 1972), p. 40. The resource shift "included the reassignment of the remaining cruise building ways and sharp cuts in naval building programs, both current and projected."

³¹ The series appeared in the journal *Morskoi Sbornik* (published under the auspices of the Soviet Navy) in 1972 and 1973. For a sampling of Western interpretations see Robert G. Weinland, Michael K. McGwire, James M. McConnell, Admiral Gorshkov on "Navies in War and Peace," (Arlington, Va.: Center for Naval Analysis, September 1974).

³² Paul K. Cook, "The Political Setting," in U.S. Congress Joint Economic Committee, "Soviet Economic Prospects for the Seventies," A Compendium of papers submitted to the Joint Economic Committee, 93d Cong., 1st sess., 1973, p. 7. Avtorkhanov estimates that there are about 1,500 administrators in the Secretariat, p. 209.

Although various interpretations of the Secretariat's power exist, there is general agreement on its importance. The Secretariat is the administrative head of the party. The party rules state that it is "to direct current work, chiefly the selection of personnel and the verification of the fulfillment of party decisions."³³ The Secretariat deals with the registration of leading cadres and controls all appointments to important positions in the party apparatus, the state apparatus, trade unions, the Komsomol and other social organizations.

In addition to the extensive control over personnel appointments, the Secretariat has a number of functional departments paralleling economic and social organizations and giving it control in these fields. The Secretariat's structure and functions have changed over time, in efforts to adapt it to tasks of economic control. It was reorganized in 1934 to correspond to specialized branches in industry and administration. The industrial branch organizations were eliminated in 1939 and criticized for diluting lines of responsibility. They were restored in 1948 in order to improve work in the selection of cadres and control of government, economic, and public organization activities.³⁴

About a dozen departments dealing with branches of the economy and monitoring the respective ministries are known to exist. Their exact areas of competence are not known, but many of them could be involved in aspects of ocean issues. For example, there could be ocean considerations in the Departments of Agriculture (headed by A. D. Kulakov, possibly concerned with development of pond fisheries and fish meal production); Construction (I. N. Dmitriyev, transportation construction); Defense Industry (I. D. Serbin, naval issues); Heavy Industry; Light and Food Industries (F. I. Machalin, fishing); Science and Educational Institutions (S. P. Trapeznikov, Academy of Sciences, and Higher Educational Institutions in ocean scientific research activities); Trade and Domestic Services; and Transport and Communications. Other departments operate in the fields of Socialist Countries, Foreign Communist Parties, and Party Affairs.

The operating procedures of the Secretariat are not described in the literature but it has a large staff and broad areas of competence. Some speculate that the Secretariat departments are in effect the real ministries of the U.S.S.R. They are seen as having complete administrative responsibility in their subject field and direct control of the ministries and central agencies.³⁵ Others state that the Secretariat's function is to monitor industrial activity, check on the implementation of decisions, and draft reports for the Politburo. Under this schemata, the Secretariat is used to pass down decisions to the basic party organizations formed in every institution, plant or farm where there are at least three Party members.³⁶ Still others assume that the Secretariat conducts the day-to-day servicing of the Politburo and the Central Committee.³⁷

³³ Robert G. Wesson, "The Soviet State: An Aging Revolution" (New York: John Wiley and Sons, Inc., 1972), p. 107.

³⁴ Merle Fainsod, "How Russia is Ruled" (Cambridge: Harvard University Press, 1963), pp. 194-200. Adam B. Ulam, "The Russian Political System" (New York: Random House, 1974), pp. 148-149.

³⁵ Avtorkhanov, p. 217.

³⁶ Cook, p. 7.

³⁷ Fainsod, p. 220.

THE CENTRAL COMMITTEE

The Central Committee is legally the supreme party authority when the Communist Party Congress is not in session. It is assigned broad powers to direct all party activities, deploy leading cadres and direct the work of central state organizations through the party groups in them.

The Central Committee, however, is unwieldy for executive work. By statute it is only required to meet every 6 months. Most of 245 members and 155 candidate members are located at a distance from Moscow, making it difficult for the Central Committee to operate continuously as the highest policymaking body. Its members are mainly from the party bureaucracy and are holders of certain public offices, such as the first secretaries of republic or regional party committees. It also has a small number of members from the more important government organs and some distinguished citizens. Maritime and ocean concerns could be represented at the plenary meetings by members from ministries or state committees in the ocean's field, as well as by the first secretaries from regions with maritime economies.

Under Khrushchev, Central Committee sessions were held as open forums and discussions and reports were published. Sometimes hundreds of participants who were not Central Committee members were invited to join in the discussions. Khrushchev at times used the plenums to pass measures that were opposed by Politburo members. He used these tactics in 1954 for the virgin lands program, the reconciliation with Tito in July 1956, in the February 1957 industrial reorganization, and in June 1957 in opposition to the anti-party group that attempted to overthrow him.³⁸

The proceedings and operating procedures of the Central Committee plenums are no longer made public. It is composed of the Soviet elite and presented as a major decisionmaking body, and important foreign policy and domestic decisions are announced at its sessions. Kosygin's statement on new methods of economic management, for example, was made at the September 1965 Plenum. Numerous resolutions are issued in its name concerning issues of administration and ideology. A number of resolutions on ocean uses and management have been issued by the Central Committee.

It is assumed that most of the preparatory work and composition of these documents is handled in the Secretariat. But the question as to whether the plenums participate in the decisionmaking process, operate as discussion forums for the exchange of opinions on subjects, or are simply the legitimizers of policy decisions made by higher levels remains unanswered. The fact that the proceedings are now kept secret is interpreted by some as an indication that the discussions are relatively open.³⁹

THE CONGRESS OF THE CPSU

The Party Congress has not been notably involved in ocean policy issues and, in any event, has little policymaking power. Theoretically, the Party Congress is the supreme body of the Communist Party. It is authorized to hear and approve reports of central organizations,

³⁸ Fainsod, pp. 219-20.

³⁹ Gilison notes that Brezhnev promised a larger role for the Central Committee plenums in 1966, p. 154. Citing *Pravda* and *Izvestiia*, March 30, 1966.

review the party program and statutes and elect the Central Committee and the Central Auditing Commission. In fact, however, these are symbolic powers and the Congress is composed of several thousand members who meet for a few days once every 5 years.

The Party Congress does serve as a forum for both confirmation and criticism of the leading party line and for voicing disagreements. The Congress includes the report of the Central Committee and reviews foreign and domestic policies, which are followed by laudatory statements and speeches on the new economic plans and reports. The Party Congress can, as in 1956, be the location for a major announcement on de-Stalinization. It can also serve as a forum for disagreement, as at the 22d Party Congress⁴⁰ or the 24th Congress in 1971 when both the Ukrainian and Byelorussian party chiefs attacked the Ninth Five Year Plan's emphasis on consumer goods.⁴¹ Ocean issues were directly discussed at the 23d Party Congress in 1966. Michael Sholokhov, the prominent Soviet author lashed out at the Minister of Fisheries A. Ishkov for his poor management of the industry. Speaking as "a representative of Soviet literature" he criticized Ishkov's lack of concern about the harm done by pollution throughout the Soviet Union.⁴² Sholokhov conducted a lengthy discourse on the need to save Lake Baikal and the absence of planning to " . . . preserve 'the glorious sea sacred Baikal!'" He emphasized that "the Quiet Don is vanishing," and the threat of exhausting fish reserves in the Azov Sea. Sholokhov particularly criticized Ishkov for his attitude and poor management and operational techniques, that result in depleting fish stocks. Sholokhov stated that he had reluctantly toned down his presentation at the request of friends who said that he was being too rough on the Minister of Fisheries.⁴³ His speech was well received and repeatedly interrupted by prolonged and stormy applause.

LOWER PARTY ORGANS

The structure and operations of the lower party organs will not be examined in this study, but it should be kept in mind that they are important administrative units of the party used for supervision and transmission of higher party directives and also for making decisions at their level of operation. Jerry Hough in his extensive study notes that the party first secretary at the republic or provincial level is a perfect like official and an integral part of the administrative system.⁴⁴ He is responsible for representing the center in his area, coordinating the work of local agencies, and seeing that decisions reflect broader perspectives. The top policy decisions are made in the central party organizations. However, since it is often difficult to distinguish between routine administrative questions and those that

⁴⁰ Slusser's account of the October 1961 proceedings analyzes the conflicting approaches.

⁴¹ Cook, p. 7.

⁴² Marshall I. Goldman notes that the Chief Administration for Fish Control of the Ministry of Fisheries was one of numerous agencies that set up investigative commissions on Lake Baikal pollution and approved of the plans for the factories. "The Spoils of Progress: Environmental Pollution in the Soviet Union" (Cambridge: The MIT Press, 1972), pp. 190-191.

⁴³ Speech by Comrade M. A. Sholokhov (Pravda April 2, 1966), p. 5. Condensed and translated text in *Current Soviet Policies*, Volume 5. *The Documentary Record of the Twenty-third Congress of the Communist Party of the Soviet Union* (Columbus, Ohio: American Association for the Advancement of Slavic Studies, 1973), pp. 66-8.

⁴⁴ Jerry F. Hough, "The Soviet Perfects: The Local Party Organs in Industrial Decision-Making" (Cambridge: Harvard University Press, 1969).

have policy implications, decisionmaking powers frequently devolve to local party organs.

There are a variety of republic, regional, district, town, and primary party organizations. The republic and regional central committees are modeled on the CPSU Central Committee and have departments in party work and functional sectors.⁴⁵ In addition, the district and town committees are concerned with party and industrial affairs. There are also about 350,000 primary party organizations with from three to a thousand members. Their tasks are limited to the admission of new members and the improvement of work performance.⁴⁶

Aside from the official structure, other forms of party leadership are used at the local level to integrate the party with the economic and social sectors. Commissions are frequently established to link party activists with nonparty members in order to assist in production.⁴⁷ Permanent commissions are also established in districts and towns to act as consultative organs for the party apparatus on broad economic and ideological issues.⁴⁸ Although the party has important oversight and policymaking functions, the extent of ocean uses and the nature of the necessary considerations seems to preclude continual or centralized decisionmaking on oceans by the CPSU.

The limited information available on the CPSU permits only a sketch of the party's structure and operations in ocean policy formulation. The party is an extensive institution with major power in defining policy objectives. Party organizations at different levels are in contact with ocean issues and are able to exercise leverage on policy and management. It is apparent, however, that power is not completely centralized within the party and is dispersed at various levels. Party members also do not necessarily display a single view on policy. Additionally, as the following section will show, ocean issues require technical expertise and power is shared with government institutions.

THE GOVERNMENT BUREAUCRACY

Many writers have maintained that the Communist Party of the Soviet Union manages all domestic sociopolitical and economic activity. The party is assigned the political and economic leadership of society. The Soviet Government, on the other hand, has been portrayed as merely the tool for implementing party policy.

As the previous section shows, although party leadership maintains supreme political power, it has been diluted through bureaucratic growth, institutional alignments, and individual preferences. And while the party has vacillated or been torn between its ideological and administrative roles and top party leadership concentrated its energies on crisis management or political maneuvering, the Government's chief task has been management of the country's economy. The Government directly manages all spheres of economic life. Every industry and

⁴⁵ Avtorkhanov, p. 157. Michael P. Gehlen, "The Communist Party of the Soviet Union" (Bloomington: Indiana University Press, 1969) p. 122.

⁴⁶ Wesson, p. 103, Gehlen, p. 122, Fainsod, p. 222 ff.

⁴⁷ Gehlen notes that in 1965 in Leningrad there were about 4,000 commissions for economic production, pp. 126-8.

⁴⁸ Avtorkhanov states that permanent commissions are also being established in republic and regional committees, p. 142.

enterprise is owned and operated by the state. The Government has primary responsibility for the bureaucratic routine of economic administration and takes decisions on technical matters, resource allocation, and implementation of higher policy directives—the mundane tasks of noncrisis management.⁴⁹ These tasks involve both the implementation and initiation of policy since Government agencies prepare studies, formulate recommendations, in many cases, participate in the selection of a choice between options and, then, implement the decision.

The component elements of the government include the Supreme Soviet, the Presidium of the Supreme Soviet, the Council of Ministers and its Presidium, ministries and state committees, and the lower level government administrative subdivisions and enterprises. The main focus of this section will be on the responsibilities and powers of ministries and state committees under the Council of Ministers that have a role in ocean policy. But first, a quick look at the other government sectors that may participate in ocean policymaking and management.

THE SUPREME SOVIET

The Supreme Soviet meets twice a year from 3 to 5 days at a time and in 1970 had 1,517 members. It has two chambers, the Soviet of the Union and the Soviet of the Nationalities. The Supreme Soviet is designated the highest organ of state power and has the exclusive right to legislate. Its powers are more ceremonial than real, and the sessions are used to appraise government activity, explain actions, and promulgate legal decisions. The Supreme Soviet has passed legislation on the environment and oceans.

The Presidium of the Supreme Soviet consists of a Chairman, Deputy Chairmen and other members, and has highly overlapping membership with the Communist Party Central Committee. Politburo member Nikolai Podgorny is the Chairman, and he serves as the titular head of state. The Presidium is to act as a continuously operating body at the summit of the Soviet structure and frequently serves as a legislative organ between sessions of the Supreme Soviet.⁵⁰

Much of the Supreme Soviet work in the ocean field may take place in the Permanent (also referred to as Standing) and Ad Hoc Commissions established to assist in legislation and investigation. The Permanent Commissions are assigned the role of monitoring compliance with the laws of the U.S.S.R. and Supreme Soviet decisions and examining draft legislation. They meet regularly between Supreme Soviet sessions, prepare summaries of draft plans and their amendments, as well as other items to be discussed by the Soviet session.⁵¹ They can call for public discussions of pending legislation, request documents, data and policy statements from all levels of ministries and departments, and oblige their directors to appear at commission

⁴⁹ The primary purpose of the 1957 industrial reform was to increase the party's operational role in economic management. It did not work. See Conyngham for a description of Khrushchev's attempts to extend party control over the managerial bureaucracy. William J. Conyngham, "Industrial Management in the Soviet Union: The Role of the CPSU in Industrial Decision-Making, 1917-1970" (Stanford, California: Hoover Institution Press, 1973), p. 113 ff.

⁵⁰ Robert Conquest, ed., "The Soviet Political System" (London: Bodley Head Ltd., 1968), p. 67.

⁵¹ "Supreme Soviet Commissions to Study 1976 Plan," Domestic Service in Russian. In FBIS, November 10, 1975, p. R. 1.

sessions and present reports. At sessions of the full Soviet, the commissions have the right to present coreports directly after a minister's report.⁵² The Permanent Commissions can also make recommendations on improving work to state organs, including the Council of Ministers, and the recommendations come under obligatory review.⁵³

According to a 1966 speech by Podgornyi, the commission system was to be strengthened and membership enlarged because of the increased amount of work and the need to improve discussions on complex questions. The draft law on water utilization was given as an example of an issue affecting numerous interests in "agriculture, industry, power production, fishing, inland shipping, etc." which should be included in the discussions and work on the bill to insure the most rational use.⁵⁴

The Commission system was strengthened and the 1967 Decree on Permanent Commissions formalized its role. The number of commissions was increased from 5 in each chamber in 1965 to 14, and at the present time they include two-thirds of all the deputies. Another indication of the commission's importance is the assignment of Sergei P. Trapeznikov, the head of the powerful Central Committee Department for Science, and Higher Education and advisor to Brezhnev, as the Chairman of the Permanent Commission for Education, Science and Culture.⁵⁵ Commissions have been established for budget and planning, legislative proposals, foreign affairs, industry, transport and communications, environmental protection, agriculture and other fields.⁵⁶ Subcommissions of specialists on particular topics can be included in their work. Permanent Commissions have also been established at the Republic and lower levels.

THE COUNCIL OF MINISTERS

The Council of Ministers is the executive managing agency in the government for the direction and coordination of the state apparatus. The Council and its ministries are the main source of legislation, and issue decrees and regulations regarding economic and social life. The Council is composed of about 50 ministries, a dozen state committees, a number of government agencies and councils, and the 15 chairmen of the republic level Council of Ministers. The structure and powers of the Council have fluctuated over time, reflecting dissatisfaction and experimentation in administration.

The Presidium of the Council of Ministers serves as an administrative coordinator and is formed by the Chairman, the First Deputy Chairman and a number of Deputy Chairmen. The Presidium has highly overlapping membership with the Politburo, possibly indicating that it has important functions. The Chairman since 1965 has been Aleksei Kosygin. He is a professional administrator and has made his career in management. Since 1946 he has also been a candidate

⁵² Gilson, p. 110.

⁵³ See Gilson, p. 106 ff; "Conquest," pp. 57-59; Leonard Schapiro, "The Government and Politics of the Soviet Union" (New York: Random House, 1965), pp. 124-125.

⁵⁴ Nikolai Podgornyi, *Pravda* and *Izvestiia*, August 3, 1966. Cited by Gilson, p. 112.

⁵⁵ Eugene Zaleski, "Central Planning of Research and Development in the Soviet Union," in E. Zaleski, J. P. Kozlowski, H. Wienert, R. W. Davies, M. J. Berry, R. Amann, "Science Policy in the U.S.S.R." (Paris: OECD Publications, 1969), p. 50.

⁵⁶ F. F. Petrenko, "The Party's Development and Improvement of Soviet Society and Political System" *Voprosy Istorii KPSS*, No. 6 (1975). In FBIS, July 15, 1975, p. R. 13.

member and later, full member of the Politburo. Kirill T. Mazurov, earlier identified for his ocean activities, has held the post of First Deputy Chairman since 1965. His career has been almost evenly divided between work in the party and state administration. He became a candidate member of the Politburo in 1957, a full member in 1965. The Presidium's responsibilities and powers are not clear. It probably oversees the preparation of plans, information, and reports by the ministries, state committees and other government agencies, reviews them, and exercises coordination when necessary. It also is the principle issuer of laws, or decrees with the force of law.⁵⁷ The Council of Minister's Presidium would probably rely on subordinate government agencies for specialists and expertise in issuing maritime legislation.

THE MINISTRIES

The ministries and state committees execute and coordinate policy and also work in much of the detailed policy formulation. The ministries are executive organs and their activities are guided by established party and government policies. The ministries and other administrative tiers in the government, however, are in a strong position regarding policy responsibility. A minister's success is judged on the basis of plan fulfillment and his management functions result in policymaking powers. The ministries are generally staffed by specialists who have greater expert knowledge in their field than do party workers. Knowledge and information become translated into power when policy is concerned with complex or technical issues, and give the ministries discretion in designing and executing programs. Information is particularly important in the ocean field which is a high technology area. The ministries operate within guidelines established by the party and government, but with broad powers to decide all basic questions affecting activities and enterprises under their jurisdiction. They are to plan and draw up the major elements of capital investment and production trends and assure smooth operations, the maximum application of technology, and the availability of personnel. The ministerial system attempts central control in a federal framework to insure the consideration of the general rather than the regional or specialized welfare. The ministerial centralization, however, creates problems because it works to disperse authority and power between ministries. Ministries frequently compete with each other for preferred policies and coordination of operations or policy between ministries is a major problem.

Two general categories of ministries are established on the basis of their central powers. The All Union ministry directly administers enterprises and activities in its field of competence, regardless of the location. The Union Republic ministry works primarily through the counterpart ministries in each republic. It has operations both in Moscow and in the 15 republic capitals and is frequently considered less centralized with some powers dispersed to localities. Both types of ministries exist in the ocean field.

A typical ministry is divided into a number of departments or chief administrations (*glavki*) that are responsible either for functional tasks,

⁵⁷ See Butler, for a list of Soviet legislation on maritime issues, pp. 220-221.

such as finance, labor, legal affairs, or that are subdivisions of the given industry, with operations in a specific area. Most of the ocean related ministries have their own legal departments indicating competence, if not actual responsibility in maritime legal matters. There have been periodic shifts and experimentation in the distribution of powers between the central ministry and its component units. Enterprises are generally responsible to the glavk of their ministry. They receive plans from the glavk and submit applications for supplies and investments funds to the glavk.⁵⁸

A ministry is headed by a minister and he along with his senior deputies and the heads of chief departments form the collegium of the ministry. The officials in these high level positions usually have made their career in the industry and have a specialized expertise in their field. They can be considered more as "senior business executives" rather than politicians,⁵⁹ but they have opportunities for continuous contact with political leaders and provide information and alter policies.⁶⁰ The collegium meets regularly to consider reports from lower bodies, formulate reports for the Council of Ministers, and draft directives for lower bodies. The collegium looks into questions of practical management of enterprises, staffing, and hears reports of their activities.⁶¹ It has an advisory role to the minister, and decisions are effected by an order from the minister. If disagreement arises in the collegium, the minister implements his decision, but informs the government of the difference of opinion. Collegium members are entitled to appeal the minister's decision to the government.⁶²

A number of ministries, committees and agencies under the Council of Ministers are either directly involved in ocean activities or have divisions that conduct important work in this field. Various other ministries and committees interact with primary ocean users and their activities must be coordinated for providing supplies and other services. One can assume, for example, that the Ministry of Fisheries has important relations with the Ministries of Agriculture, Defense, Finance, Food Industry, Foreign Trade, Land Reclamation and Water Resources, Meat and Dairy Industry, and Trade. This cluster of institutions involved in aspects of fisheries can develop interests that support or challenge policies promoted by the Ministry of Fisheries.

Three ministries have almost exclusive ocean interests. The Ministry of the Maritime Fleet is involved in planning and oversight of shipping activities. The Ministry of Fisheries works with the regional administrations, republic ministries, and fisheries research institutes. The Ministry of Shipbuilding is in charge of shipyards and design institutes and builds ships for the navy, maritime, and fishing fleets.

There are also other ministries and government agencies with major subdivisions in ocean affairs. The Ministry of Defense in the Soviet Union receives special attention and is an important consideration in policy and planning. The primacy of defense interests and military

⁵⁸ Alec Nove, "The Soviet Economy, An Introduction" (New York: Frederick A. Praeger, Inc., 1969), p. 69.

⁵⁹ Ibid.

⁶⁰ Gilson, p. 134.

⁶¹ N. P. Sysoev, "Economics of the Soviet Fishing Industry" (Moscow: Pischevaia promyshlennost', 1970). Translated by Israel Program for Scientific Translations, Jerusalem, 1974 (Available from Springfield, Virginia: U.S. Department of Commerce, National Technical Information Service), p. 47.

⁶² Ibid.

planning are important components in every country's decisionmaking and have a central role in the Soviet Union. There are indications, however, that the Soviet Navy does not have the same prestige or sympathetic support as other Soviet military forces. The Soviet Navy has undergone numerous cutbacks and occasionally struggled for its very survival. With the movement of nuclear strategy into the sea, naval proponents such as Admiral Gorshkov, have argued for increased support of naval development.

The relative importance of naval interests as opposed to other ocean agency interests should not, however, be underrated. Naval needs will undoubtedly receive careful consideration and a large amount of funding relative to other ocean uses. Wenk, in describing the U.S. Navy, for example, called it the "big boy" in the oceans "running ships, sponsoring most of the research, influencing Congress, and capturing the headlines."⁶³

The Ministry of Foreign Affairs is a focal agency in law of the sea issues. The exact role of the Ministry in foreign policymaking is not known, but has generally been presented in minimal terms. It has, however, developed a significant expertise in law of the sea issues, and must interact at some stage of ocean policymaking. Andrei Gromyko has been Foreign Minister since 1957, and Vasiliy Kuznetsov has been First Deputy Minister since 1955. Both are voting members of the Central Committee, and in 1973 Gromyko was appointed a member of the Politburo. The stability in tenure, and Gromyko's promotion indicate a confidence and satisfaction in the work of the Ministry. The Ministry as a whole has been heavily represented in United Nations meetings on the law of the sea. Out of a total of 69 delegates in the 8 years of discussions, 37 have been affiliated with the Ministry of Foreign Affairs, 14 of them with the Ministry's Treaty and Legal Department.⁶⁴

The Treaty and Legal Department is the main body within the Ministry of Foreign Affairs concerned with ocean policy. This structure seems to parallel that of other countries where the Legal Section of the Foreign Affairs Ministry assumes control or coordination of the United Nations Law of the Sea negotiations.⁶⁵ The Treaty and Legal Department is the source of the Ministry's expertise. Oleg N. Khlestov, head of the Department since 1965, has a specialty in law of the sea issues and has written on this subject. He was Deputy Chief of the Department from 1957-65, and since 1973, a member of the Foreign Ministry collegium. Out of the Department's total staff of 18 officials identified in 1974, one-third are specialists or have worked in maritime legal affairs.⁶⁶ It is likely that the Ministry of Foreign Affairs, relying on the Legal and Treaty Department, exhibits coordinating or primary power when ocean issues assume foreign policy dimensions.

⁶³ Wenk, p. 135.

⁶⁴ See Appendix A.

⁶⁵ Ann L. Hollick, "Canadian-American Relations: Law of the Sea," *International Organization* 28 (Autumn, 1974): 755-80.

⁶⁶ United States Central Intelligence Agency. Reference Aid. "Directory of U.S.S.R. Ministry of Foreign Affairs Officials" A(CR) 74-26, (July, 1974), pp. 37-38. The listing given is not exhaustive since additional departmental members have been identified as delegates to the United Nations Law of the Sea proceedings.

The Ministry of Geology also has ocean management and policy interests and has been represented by Soviet delegates to United Nations discussions. The Ministry oversees prospecting organizations and research institutions in offshore mineral studies. In the 1960's the Ministry developed a research fleet to conduct studies of the continental shelf. In 1967 the Institute of Marine Geology and Geophysics (VNIIMORGEO) was organized under the Ministry with branches throughout the country.⁶⁷

The Main Administration of Hydrometeorological Services has significant ocean interests through its forecasting services and provision of important weather and water level forecasts. The Service has coastal observation stations as well as research institutes and ships. Both the Ministry of Higher and Secondary Specialized Education and the U.S.S.R. Academy of Sciences have ongoing ocean interests through the research activities they supervise.

Another level of the Soviet government, the state committees under the Council of Ministers, provides important coordinating and planning assistance to the ministries. Gosplan is in charge of long term and current planning on a national scale. Its main tasks are to ensure correct economic proportions and links, to increase efficiency, and to work in coordination. Gosplan has departments for individual industrial sectors, and there is a special division for fisheries. The State Committee for Science and Technology coordinates and supervises the work of research establishments in the Soviet Union. It is concerned with formulating key research projects and directions, and ensuring the implementation of scientific and technological discoveries into production. It has a division, the Science Council on Ocean Research and Use of Ocean Resources headed by E. K. Federov.⁶⁸ Other state committees are involved in aspects of ocean administration and policymaking. The State Committee for Construction guides the technical policy in construction and drafts capital investment plans jointly with Gosplan. The State Committee for Labor and Wages and the State Committee for Prices work with the prices and distribution of labor and products. Agencies under the Council of Ministers with ministerial status that operate in fields influencing ocean management are the Central Statistical Administration, which collects and analyzes data on the work of economic sectors and enterprises; the Board of the State Bank; and the Committee of Peoples' Control.⁶⁹

Important policy decisions and major economic issues will, of course, be decided by the top political leaders. The remaining issues of management and decisionmaking will be left to administrators, most of whom are in the government bureaucracy. The Soviet press presents abundant evidence that the administrators consider options in their attempt to design programs. Intra and interministerial discussions are publicized on technical and managerial issues. Individual and bureau positions are shown to differ. One sees direct policy conflict less frequently. Agencies usually do not state open disagreement with the official Soviet position, but do indicate differing preferences.

⁶⁷I.D. Papanin and Ye. M. Suzyumov, "The Development of the Soviet Research Fleet," *Oceanology* no. 5, (1971): p. 658.

⁶⁸Zaleski, p. 127.

⁶⁹Sysoev, pp. 45-46.

Disagreements on management procedures and policy arise at the various levels of the Soviet structure. Conflict can develop between government and party leaders, between the ministries and the Central Government, between different ministries, and within ministries over the allocation of resources and policy choices. The Soviet political system "... is a huge bureaucratic arena in which bureaus compete, bargain, and negotiate to such a degree that although all are officially subordinate to one central leadership there is virtually no sphere of administration immune from bureaucratic politics."⁷⁰

One can refer again to the case of the 1955 dismissal of Admiral Kuznetsov, whose views on naval development differed sharply with Khrushchev's and, perhaps, those of other Politburo members. There is also the well-documented case of Soviet Minister of Agriculture Matskevich deliberately and openly opposing and blocking some of Khrushchev's agricultural programs. Matskevich had contact with and the support of some other party leaders. The struggle he waged with Khrushchev went on for several years until Matskevich was dumped in 1961. He was again restored to office after Khrushchev's deposal.⁷¹ Disagreements and debates between top party leaders and central planners over policy and resource allocation have been occurring since the beginning of Soviet rule.

There are substantial examples in the Soviet press of criticism of administrative inefficiency or production problems and disputes between ministries. Most of these are simply problems of management. Many of the disputes, however, indicate strained operating relations that have direct policy implications. In the case of water pollution, which will be discussed in greater detail in a further study, fisheries, conservation, and recreation interests frequently clash with polluters, such as offshore drilling facilities, shipping, and industrial and public facilities that dump wastes and do not observe legal provisions for installing water purification equipment. And, while some fishery sectors strongly promote increased controls over polluting activities, others are criticized by conservationists for their laxness.

Another case of ministerial dispute is displayed by an argument that erupted in the technical press in 1972 over allegations of the superior status of the Ministry of Maritime Fleet. The merchant marine's contempt toward other maritime services, and the emotions aroused by the problem of who has the right to wear the seaman's uniform may well run across the board on other topics. A series of articles was published in almost every issue of the journal of the Ministry of Maritime Fleet under the heading "Your Uniform Sailor."⁷²

The series began by proclaiming the exclusive privilege and rights of merchant fleet seamen to wear the distinctive and popular uniforms. This view elicited angry objections from fishery and other maritime workers. The editors noted that letters came from seamen and shore workers of the Ministry of Maritime Fleet and the Ministry of Fisheries expressing various points of view on this subject and other related questions. The letters presented different points of view but agreed

⁷⁰ William Taubman, "Governing Soviet Cities Bureaucratic Politics and Urban Development in the U.S.S.R." (New York: Praeger, 1973), pp. 5-6.

⁷¹ This incident, and the remainder of the agricultural debate is well documented in Hahn; and Sidney I. Ploss, "Conflict and Decision Making in Soviet Russia: A Case Study of Agricultural Policy 1953-1963" (Princeton: Princeton University Press, 1965).

⁷² The series appeared in *Morskoi Flot*, 1972.

on the lack of organization in regulating uniforms, and the inadequate supplies. The editors stated that only a sampling of the many letters could be presented. The Minister of the Maritime Fleet, T. Guzhenko, responded to the flurry of concern. He reviewed the published materials and charged the ministry collegium with establishing a special commission on sailors' uniforms.⁷³ The Ministry of Maritime Fleet series gradually evolved into an exposition attempting to define a standard uniform, calling for regulations, and the establishment or responsibility for upholding the regulations. Somewhat later, an article appeared in the Ministry of Fisheries journal asking "Why should there be a distinction between the uniforms of seamen who transport bananas on refrigerator ships of the Ministry of Maritime Fleet of the U.S.S.R. and those who transport fish products on refrigerator ships of the Ministry of Fisheries, over U.S.S.R. . . . They are all seamen, and what difference is it which ministry they are subordinate?"⁷⁴ This emotional issue attracted a great deal of attention and is illustrative of interagency rivalries.

Another instance of the difficulty of coordinating ministries' work is found in the case of offshore oil. A Soviet author examining the lack of coordination between the agencies prospecting for oil on the continental shelf off Sakhalin states " . . . that the business relations between the different types of organizations which are subordinate to different ministries do not demonstrate a unity of interests."⁷⁵ He states that five research organizations are conducting work in the area "without a unified plan and leadership, frequently duplicating each others' work." This resulted in the compilation of four practically identical geological structure maps of the Sakhalin shelf.⁷⁶ The consequences of uncoordinated or strained working relations can have foreign policy effects. Perhaps, because of poor management of offshore work, the Soviets had overestimated the amount of gas on the shelf by a magnitude of four and the error was carried into discussions on the Prime Ministerial level with the Japanese on exploitation of gas around the shelf.⁷⁷ The difficulties of designing and coordinating ocean scientific research arise repeatedly.

At the level of the ministry itself, one finds numerous cases of management and policy differences between bureau heads who promote departmental preferences. Operating under conditions of scarce resources one can see the promotion of economic objectives that have policy results. Distant water fishery expansion, for example, has its opponents in those who would invest more in the development of pond or lake fisheries, and the investment in distant water operations is criticized by those promoting internal water fisheries. These interests use the policy clashes with countries extending their maritime jurisdiction, cases of fishery stock depletion, costs of distant water fleets, and experiences of foreign countries as reasons for greater concentration on developing internal fishery resources.

⁷³ Editorial Note, "Information of a Commission on Uniforms," *Morskoi Flot*, July 1972, p. 32.

⁷⁴ B. Skhulev and G. Belitskii, "Bring Order in the Wearing of Marine Uniforms," *Rybnoe Khoziaistvo*, December 1972, pp. 73-4.

⁷⁵ V. Naumov, "Losses to Lack of Coordination," *Sotsialisticheskaya Industriya*, October 29, 1974. Transl. in Joint Publications Research Service 63591, December 5, 1974, p. 27.

⁷⁶ *Ibid.*, p. 28.

⁷⁷ U.S. Congress. Joint Economic Committee. Allocation of Resources in the Soviet Union and China, p. 12.

Inter- and intraministerial differences are very apparent in the conduct of ocean science research. Scientific research is an important component of expanding ocean uses and a great deal of attention has been devoted to both selecting the appropriate issues for study and the optimal administration of research operations. Offshore oil drilling, for example, requires knowledge of a broad range of subjects, including geology, wave dynamics, ice conditions, as well as drilling platform construction techniques and drilling technology.⁷⁸

The management of scientific research and technology is a topic in itself. The ongoing discussion between the advantages of centralization and local initiative in the economy as a whole has also occurred in the field of ocean research. Ocean science research in the Soviet Union is dispersed between the various ocean users. Five ministries conduct work directly in oceanology and scientific research: The Ministry of Defense through the Naval Hydrographic Service, the Ministry of Fisheries, the Ministry of the Maritime Fleet, the Ministry of Higher and Specialized Education through university institutes, and the Ministry of Geology. The Main Administration of the Hydrometeorological Services and the Academy of Sciences also carry out ocean research.⁷⁹ As distinct from other agencies, each ministry has responsibility not only for the scientific research institutes of its branch, but it also exercises leadership of the design-construction organizations, implements the result of the scientific work, and takes measures in planning coordination, and financing the work.⁸⁰ Ministries have subordinate scientific councils for forecasting important economic and social changes.⁸¹

The difficulty of coordinating interministerial work is compounded by the significant autonomy of research institutes within the various ministries in planning and conducting research operations and in pursuit of their self-interest. Soviet press articles periodically appear that both praise the quality of scientific research and its organization and criticize the broad latitude exercised by individual institutes. Scientific research organizations are viewed as important contributors in assisting the planning process. They conduct basic research and submit recommendations on future development.⁸² The central ministries, as well as the State Committee for Science and Technology, the Academy of Sciences, and Gosplan exert coordinating powers in an attempt to deal with the determination of directions, avoid duplication of efforts, and facilitate the exchange of information. Management functions in science and technology are also shared by Gosstroj, Gossnab, and others.⁸³

⁷⁸ M. I. Klenova, "Fifty Years of Soviet Marine Geology," *Oceanology*, no. 5 (1971) p. 708 lists some of the institutes participating in marine geologic research.

⁷⁹ For further information on the ocean research structure see Robert D. Plunkett, "Okeanologiya," *Oceans*, July 1969, pp. 49-57.

⁸⁰ M. I. Piskotin, V. A. Rassudovskii, M. P. Ring (Academy of Sciences U.S.S.R., Institute of State and Law), *Organizatsionno-pravovye voprosy rukovodstva naukoi v sssr* [Organizational-Legal Questions of Science Management in the U.S.S.R.] (Moscow: Nauka, 1973), pp. 133, 243.

⁸¹ *Ibid.*, p. 222. A further description of scientific research work in the ministries is also found in R. Amann, M. J. Berry and R. W. Davies, "Science and Industry in the U.S.S.R.," in Zaleski, et al. "Science Policy in the U.S.S.R." (Paris: OECD, 1969), pp. 403-4.

⁸² See the interview with A. Larina (director of the Soiuzmorniiproekt Institute), "For effectiveness of science," *Vodnyi Transport*, January 10, 1974. Larina states that working out the "General Scheme of Merchant Marine Development" is the most important problem in the institute and that the main orientation in the third quarter will be to complete proposals for merchant marine development 1976-1980.

⁸³ *Organizatsionno-pravovye voprosy*, pp. 170-87. Gallagher and Spielman note that the Secretariat Department for Science and Higher Education acts as the party watchdog on science matters, pp. 92-3.

The ministries are criticized, however, because they neither determine the main directions of research, nor adequately supervise institute activities. Subordinate institutes continue to conduct research that appeals to their staff⁸⁴ and display broad powers in defining and executing their tasks. Research institutes work with little coordination between themselves, or between the institutes and their policy supervisors. They will often provide output that is not usable for designers or industry. Alexander in his study describes the fragmented structure in the aviation industry. Despite the concentration of research, design, development and manufacturing in the Ministry of Aviation Industry, research is performed by research institutes, design and development is conducted in design bureaus and their prototype construction shops, and manufacturing takes place in plants not formally linked with the design bureaus.⁸⁵ There may be a greater degree of cohesion in ocean research since each major scientific institute has its own engineering departments or design offices and construction bureaus for work in equipment and ship design.⁸⁶ Criticism of the usefulness of scientific output continues however, and in the case of fisheries, central administrators criticize fishery scientists and claim that their work is weak, insufficient, and inapplicable to the tasks facing fishery management. Scientists, on the other hand, criticize the central administrators for insufficient funding and inadequate provisions of equipment. In an article in *Oceanology*, L. I. Kozlov was critical of the Soviet policy of refitting vessels for scientific research, rather than designing and building new ships. He stated that this is due chiefly to the lack of an engineering center for coordination and supervision of scientific research vessel development in the U.S.S.R. Ministry of the Shipbuilding Industry.⁸⁷ Other Soviet writers also criticize the design and construction of vessels.⁸⁸

THE MINISTRY OF MARITIME FLEET

The following section will examine the administration of the Ministry of Maritime Fleet (hereafter referred to as MMF) to illustrate the complex structure and procedures in one field of ocean management and the administrative and policymaking overlap. The maritime fleet, as many of the Soviet ocean uses, grew rapidly in the postwar period and decisions had to be made concerning investment, planning and selecting objectives and appropriate technology.⁸⁹ The maritime fleet interacts with other sectors of the Soviet economy and decisions also had to be taken on related domestic and foreign policy aspects. Soviet technical literature does not describe the exact structure or ongoing

⁸⁴ Editorial "The Effectiveness of Science," *Pravda* November 3, 1969. Trans. in *Current Digest of the Soviet Press*, no. 30, November 26, 1969, p. 12.

⁸⁵ Alexander, pp. 4-16.

⁸⁶ A. D. Dobrovolskiy (Department of Oceanology, Moscow State University and Deputy Chairman of the Oceanographic Commission) "Fifty Years of Soviet Oceanology," *Oceanology* no. 5 (1971) pp. 651-3. *Oceanology* is the English version of *Okeanologiya*, the U.S.S.R. Academy of Sciences publication. Trans. and ed. Scripta Technica, for the American Geophysical Union.

⁸⁷ L. I. Kozlov, "Administrative needs in the design of scientific-research vessels," *Oceanology* no. 6 (1969) pp. 892-4. Kozlov in his article criticizes the nonrational organization of the much hailed Akademik Kurchatov. He states that the ship is inefficiently organized and gives, as an example, the situation where the staff of 81 scientists cannot all work at the same time.

⁸⁸ See, for example, I. D. Papanin and Ye. M. Suzyumov, "The Development of the Soviet Research Fleet," pp. 654-9.

⁸⁹ For a description of the growth of the Soviet maritime fleet, see Robert E. Athay, "The Economics of Soviet Merchant-Shipping Policy" (Chapel Hill: The University of North Carolina Press, 1971) and Nicholas G. Shadrin, "Development of Soviet Maritime Power" (Ph. D. dissertation, George Washington University, 1972).

operations of the MMF, but does indicate the types of considerations and calculation that are taken into account.

The MMF has all union status, and as the central organ of state administration, has jurisdiction over the merchant fleet and shore based support operations. It has undergone reorganizations similar to those of other ministries. Soon after Stalin's death, it was merged with the Ministry of River Transport and called the Ministry of Maritime and River Transport. In 1954, it was separated into an independent ministry. Two years later, the Ministry of River Fleet was again united with the Ministry of Maritime Fleet. The reorganized Ministry of Maritime Fleet was one of a handful of ministries that was not abolished in Khrushchev's 1957 reforms.

The MMF makes decisions affecting fleet development and technological progress. It also oversees the operations of the lower administrative hierarchy. It is headed by a staff in Moscow and subdivided into main administrations, administrations, and sectors for management purposes. They have supervisory, functional or operational duties.

Extrapolating from a description of its Polish counterpart, the Ministry of Foreign Trade and Maritime Economy, the MMF can be seen as having extensive responsibilities. In addition to joint responsibilities with other ministries and agencies, the Polish ministry is in charge of drafting forecasts and programs for development; drafting multiyear and annual plans; establishing directions of scientific research; conducting interministry and international cooperation on the exchange of information and joint scientific research; fixing prices and fees for services and goods produced by the enterprises of the maritime economy; establishing tasks and allocating resources for industrial associations and organizational units; and others.⁹⁰

The Ministry of Maritime Fleet is headed by a collegium composed of the minister as its chairman, and a number of deputies and chiefs of main administrations. The staff's experience and expertise is impressive and would carry weight, particularly in decisions on technical issues. From 1954 to his retirement at the age of 67 in 1969, Victor Bakaev was Minister of the Maritime Fleet. Bakaev was trained as an engineer and specialized in port operations and constructions. He held a number of academic positions and was appointed Deputy Minister of the Maritime Fleet in 1945.⁹¹ Since 1970 Timofei Guzenko has been Minister. He has worked as an administrator and engineer in shipping since 1942. From 1966–1970 he served as the First Deputy Minister of the Maritime Fleet. He has also worked in the communist bureaucracy and from 1962–1966 was on the staff of the CPSU Central Committee. His connection with Communist Party work may give him additional influence in policy considerations. The other 12 members of the collegium have served at their posts since the mid 1950's and 1960's.⁹²

⁹⁰ "Competence of the Minister of Foreign Trade and Maritime Economy" Warsaw *Dzennik Ustav* May 8, 1974. In "Joint Publications Research Service" 933/62521 (July 19, 1974), pp. 48–9.

⁹¹ David Fairhall, "Russian Sea Power" (Boston: Gambit Incorporated, 1971), pp. 105–6.

⁹² United States Joint Publications Research Service. *Contemporary Biographies from the Large Soviet Encyclopedia Yearbook for 1971*. n.p. JPRS 56376–79, p. 101. I. S. Isakov, Fleet Admiral of the Soviet Union was appointed Deputy Minister of the Maritime Fleet in the mid 1950s and apparently carried interservice interests. He played a major role in the preparation and implementation of the MMF decision in 1955 to intensify scientific research work. Shadrin, "Development of Soviet Maritime Power," p. 343. Citing TsNIMF Transactions, Vol. 133, pp. 7–10.

Collegium activities are occasionally described in press accounts, and the tasks range from daily management and staffing to decisions on planning future fleet development. The collegium can hear reports from chiefs of administrations, take decisions on management and make recommendations on the conduct of work.⁹³ The collegium can reach directly to lower levels, firing administrators whose work is ineffective.⁹⁴ The MMF collegium can also commission reports, review a broad range of questions, and approve proposals of subordinate organs.⁹⁵

Coordinating internal ministry work is complex. In addition to the central ministry office, there are 16 steamship companies in the Soviet Union that are grouped on a regional basis into three area administrations and are also under the general supervision of the Main Administration of Fleet and Port Operations. The division of powers between these levels is not always clear cut, nor, it seems, observed. Each steamship company is a large economic enterprise with responsibilities for the operation of ships, ports, ship repair yards, salvage and general management. The Baltic Sea Company, for example, has a dry cargo fleet of over 200 vessels, totaling over 2 million dwt. It handles over 35 million tons of cargo yearly and manages the largest ship repair yards in the Soviet Union. A number of administrative subdivisions exist in every company to handle functional tasks and each company has a council that meets regularly to discuss management problems, personnel needs, construction, and other management issues.⁹⁶ Steps have been taken to expand the authority of individual steamship companies and limit the central powers of the minister to general problems of technical development and overall planning. However, criticism of the arbitrary directives of the ministry continues.⁹⁷ The three area administrations were recently established as an intermediate authority to handle management and coordinating activities of all the shipping organizations in their region.

The MMF also has a number of important functional divisions. The following listing is not exhaustive, but does suggest the extensive allocation of administrative responsibilities. The Main Administration of Communications and Radio Navigation studies questions of development and use of equipment; the Main Administration of Navigation reviews accidents and safety measures and sees that recommendations are implemented. The Main Administrations of Material and Technical Supply and Trade and Fleet Provision that handle fleet supplies. There is a Main Administration for the Development and Construction of Ports, Yards, and Other Shore Enterprises. Sovfracht, transferred from the Ministry of Foreign Trade to the MMF in 1962 is in charge

⁹³ "Official notice: On the Basis of the New Administration Structures," *Vodnyi Transport* September 22, 1973.

⁹⁴ Editorial, "The Main Link," *Vodnyi Transport* October 4, 1973.

⁹⁵ In this case, on the preparation of specialists for 1976-1990. "Official Notice: Preparation of Specialists," *Vodnyi Transport* October 25, 1973.

⁹⁶ A. Voronkov, Y. Klementyev, "The Soviet Merchant Marine" (Moscow: Novosti Press Agency Publishing House, 1974) pp. 30-35.

⁹⁷ Athay, p. 49.

of chartering and forwarding activities. The Commercial Administration examines all questions of commercial activity. There are Administrations for Construction Orders and Supervision of the Fleet, Capital Investment on Shore, Educational Institutions and the Passenger Fleet. There is a Scientific and Technical Administration, a Department of Foreign Relations, a Legal Department, an Economic Division, an Operation and Planning and Review of Shipping Division and a system of subordinate scientific research institutions.⁹⁸ Most of the MMF research work is conducted by two large institutes, the Central Scientific Research Institute of the Maritime Fleet (TsNIIMF) in Leningrad (organized in 1929) with branches in the Far East, Baku, and Murmansk, and the State Design and Scientific Research Institute of the Maritime Fleet in Moscow (established in 1960) with branches in Leningrad, Vladivostok, and Odessa.⁹⁹ Also, planning-design bureaus and a number of higher and intermediate maritime training schools operate directly under the Ministry of Maritime Fleet.

The MMF is in some ways superior to other ocean related ministries.¹⁰⁰ The U.S.S.R. Registry, for example, is under the MMF and supervises the technical conditions of vessels (such as construction requirements and classifications) that extend to the maritime vessels of all administrative departments, except the Navy and the Frontier Guard. The U.S.S.R. Registry plays an important role in determining the safety of vessels and issues documents on behalf of the U.S.S.R. Government pursuant to provisions of certain conventions on safety.¹⁰¹ The Ministry of Maritime Fleet also has the power to issue rules, standing instructions and orders on various issues of mercantile navigation in accordance with provisions of the Kodeks Torgovogo Moreplavaniia that are obligatory for all ministries, government departments, organizations, and individuals.¹⁰²

An endless list of the administrative deficiencies at the lower enterprise and agency level could be compiled, to illustrate the hardships and difficulties of coordinating extensive activities between the various ministries and organizations. An example of such difficulties at the very basic level of enterprise operations is provided in an article in *Morskoi Flot*. The authors examine the losses, empty transits, accumulation of cargo at congested points, and cite the need for cooperation between the Maritime Fleet and the River Fleet in the Northeast U.S.S.R. They attribute many of the failures to the poor work of

⁹⁸ United States Central Intelligence Agency. Reference Aid Directory of Soviet Officials Volume 1: National Organizations. A 73-31. n.p. November, 1973, pp. 155-7. Victor G. Bakaev, *Ekspluatatsiia morskogo flota [Use of the Maritime Fleet]* (Moscow: Transport, 1965), p. 81.

⁹⁹ Shadrin, thesis, p. 343.

¹⁰⁰ No detailed description of interministry interaction is available for the Soviet MMF. The description of its Polish counterpart can again be indicative. According to the Decree of the Council of Ministers of Poland, the newly created office of the Ministry of Foreign Trade and Maritime Economy formally links affairs of foreign trade and the maritime fleet. In discharging his authority, the Ministry is to coordinate subordinate units, and also cooperate with the Chairman of the Planning Commission of the Council of Ministers, the Minister of Foreign Affairs, the Minister of Finance, the Minister of Science, Higher Education and Technology, the Minister of Labor, Wages, and Social Affairs, the Chairman of the State Price Commission, and Ministers involved directly or indirectly in implementing goals in the area of foreign trade. In "Competence of Minister of Foreign Trade," p. 45.

¹⁰¹ A. A. Volkov, *Maritime Law* (Moscow: Pischevaia Promyshlennost', 1969). Transl. E. D. Gordon, Israel Program for Scientific Translations, Jerusalem, 1971. (Available from Springfield, Virginia: U.S. Department of Commerce, National Technical Information Service), p. 45.

¹⁰² The Kodeks Torgovogo Moreplavaniia, the Soviet Merchant Shipping Code, governs relations in mercantile navigation. Volkov, p. 12.

the River Fleets, but cite the need for more detailed planning of operations, and coordination between the two river steamship companies and the Northeast Administration of Maritime Fleet Operations.¹⁰³

The Ministry of Maritime Fleet has broad operational and managerial responsibilities. The complex organizational system requires information, selection of choices, and oversight. Decisions taken on administrative and technical questions can have implicit policy relevance in allocating power to subordinate institutions and determining the future course of developments. The decisions leading to increased investment and growth of the maritime fleet included technical and administrative calculations. And the expanded maritime fleet resulted in increased international interaction and Soviet participation in international shipping conferences, United Nations organizations, and bilateral agreements. The technical requirements accompanying expanded navigation have generated management interests that can have foreign policy impact. The inadequacy of current radio location devices in navigation, for example, is noted in the MMF journal.¹⁰⁴ The authors who are engineers state that a satellite communications system for navigation is the technical basis for resolving this problem. They propose the establishment of a global system and note that studies are being conducted on the design and implementation of a satellite navigation system. The Soviet Union has in fact been advocating a global satellite navigation system and been an active participant in the International Maritime Consultative Organization deliberations on this subject.¹⁰⁵

Frequently the Soviet explanation of policy or management initiatives is presented in terms of government implementation of Communist Party directives. This positioning should not obscure the fact that most of the preparatory work and subsequent implementation is carried out by ministry officials. This multilayered process is evident in the case of the Automated Management System (the ASU—avtomaticheskaja sistema upravleniia). Due to the rapid growth of the fleet and its work and the extension of areas of operation, it is increasingly difficult to administer the fleet and ports by old methods. The Soviets, concerned with overall economic production, have conducted both economic and managerial reforms in order to improve operations. The ASU is another method promoted as a solution for the entire economy. The MMF was one of the first economic branches to develop computerized management because of its relatively well-developed communications system and technical sophistication. The Central Scientific Institute of the Maritime Fleet (TsNIIMF) began working out computer programs for the organization of cargo movements and distribution of ships back in 1962–63.¹⁰⁶ The ASU Morflot is to control the location of vessels and transport processes, to plan and regulate fleet and port work, control the fleet's technical

¹⁰³ D. Pavlovskii and N. Savin, "Interaction of the Maritime and River Fleet," *Morskoi Flot* no. 11, (1972): pp. 10–11. See also "RSFSR River Transport Official Hits Procurement Ministry," Moscow Domestic Service in Russian. In FBIS, September 17, 1973, p. T8. See also Oddvar Bo, "The Soviets in International Shipping" (pp. 2–9) and Athay for an analysis of the motives behind Soviet maritime expansion.

¹⁰⁴ A. Iakushenkov, R. Cherniaev (Engineering Candidates), "Development of Technology for Navigation," *Morskoi Flot*, no. 2 (1972) pp. 24–5.

¹⁰⁵ Brookings Institution Technology Project, directed by Seyom Brown, "Regimes for the Ocean, Outerspace, and the Weather" (Washington: The Brookings Institution. In preparation).

¹⁰⁶ Nicholas G. Shadrin, "The Soviet Merchant Marine, A Late Developing Economic Growth Sector," In U.S. Congress, Joint Economic Committee, *Soviet Economic Prospects for the Seventies: A compendium of Papers Submitted to the Joint Economic Committee* (Washington: U.S. Government Printing Office, June, 1973), p. 748.

condition, regulate yard repairs, and so on.¹⁰⁷ In an interview, the deputy chief of the Ministry of Maritime Fleet division of the ASU, E. A. Burson described the evolution of the program. He gives credit to the 24th Party Congress for recognition that improving management is necessary, and he describes the MMF as having general leadership for the development of ASU. In 1972, the Ministry collegium reviewed the course of ASU Morflot development. It defined the basic directions of development and the necessary measures for implementation. The ASU concerns a broad range of maritime transport questions and a number of subordinate agencies are involved in its development, Soiuzmorniiiproekt, Lenmorniiiproekt, Chernomorniiiproekt, TsNIIMF, and also Baltic Steamship Company, and computer centers on a number of subordinate ships are doing work on the ASU.¹⁰⁸ The development and coordination of this work is complex. A number of institutes outside the MMF are also involved and as it has turned out, centers use various computers and nonstandard programs that cannot be brought together in the framework of one industry.¹⁰⁹

Although the party leadership reserves for itself the power to make top policy decisions, there are underlying issues that must be resolved at lower levels. The extensive powers of the state were perhaps most emphasized during the Khrushchev years. His campaigns to break-up the ministerial industrial empires that distorted the economy in the interest of particular ministries peaked in 1957 with the elimination of ministries. The economy was to be reorganized on the basis of *sovnarkhozy*—regional territorial control. The Soviet Union was divided into regional economic councils and management authority was distributed between them and local units. The system became complex, with a proliferation of state committees and coordinating agencies at the center, the republics and the *sovnarkhozy*. The *sovnarkhoz* system tended toward regionalism, since the main interest was in fulfilling regional plans. After Khrushchev's deposal, the ministry system was resurrected in 1965 reform.¹¹⁰

Ministries can be viewed both as institutions that centralize decision-making authority and as organizations that decentralize power. They concentrate decisions in Moscow and guide their subordinate agencies. Ministries, however, dilute centralized power by making and implementing decisions designed to promote individual ministry goals. In addition, the centralized decisionmaking authority of the ministry itself is undermined through the operations of its subordinate agencies and subdivisions that work to promote even more narrow interests and goals.

Ocean policymaking also takes place within this complex institutional framework. The various functional interests in ocean policy

¹⁰⁷ Voronkov and Klementyev, p. 39.

¹⁰⁸ P. Volkov interview of E. A. Burson, "ASU 'Morflot' Takes on Strength," *Vodnyi Transport* October 2, 1973.

¹⁰⁹ There are many other instances illustrating the dispersal of authority and administrative difficulties in the MMF. See Shadrin, "The Soviet Merchant Marine," p. 738 ff. for the discussions on the design and construction of supertankers and containerization.

¹¹⁰ Abraham Katz, "The Politics of Economic Reform in the Soviet Union" (New York: Praeger, 1973).

promote individual goals. The multilayered structure of state and political power in the Soviet Union participates in different stages of policy formulation.

THE STATE PLANNING COMMITTEE, U.S.S.R. GOSPLAN

U.S.S.R. Gosplan is the central body under the Council of Ministers for planning and coordination. Regional Gosplan units exist in the Union Republics with local responsibility. Gosplan has been repeatedly reorganized and its responsibilities changed and it now reflects the general economic structure.¹¹¹

Gosplan has both functional and industrial divisions. In ocean related issues there are the Departments of Fisheries (headed by A. Verevkin); Geology and Mineral Resources (G. A. Mirlin); Foreign Trade (M. M. Gusev); Introduction of New Technology; National Economic Planning; and a Bureau of Prices. Departmental chiefs are apparently considered experts in their fields and occasionally write articles, participate in conferences, and head delegations. Gosplan is directed by a chairman and a collegium of about 3 dozen members. The present chairman, N. K. Baibakov was appointed in 1965 and has an extensive background in administration and economic management.

Planning is an integral component of the socialist economy. The Five Year Plan is designed to permit party and state control of major economic processes. The system of planned targets is presented by a Soviet writer as "an economic expression of the Communist Party's political line."¹¹² From the description of the Communist Party and the state apparatus, and from Soviet discussions of individual cases, it appears that there is much greater institutional interaction and crisscrossing lines of authority in planning and administration than generally assumed. The CPSU undoubtedly sets general targets or specific goals in priority areas. Key decisions can be made in the Politburo or the Council of Ministers because of the formal centraliza-

¹¹¹Gosplan went through a number of reorganizations in the postwar period. In 1948-49 Gosplan was headed by the powerful Nikolai Voznesenski, the economic czar during the war. He ran into trouble that was never explained, was arrested and executed. Gosplan was reorganized and its name changed from State Planning Commission to State Planning Committee. It lost its material allocation department, Gosplan, its technical department, Gostekhnika, and the Central Statistical Office, which became separate committees under the Council of Ministers.

After Stalin's death the status quo ante 1948 was temporarily restored, except that the Central Statistical Office remained separate. A major change occurred in 1955, when Gosplan was split into the State Planning Commission, (Gosplan) with responsibility for only long-term planning, and the State Economic Commission, (Gosplan) charged with current planning. Gostekhnika was revived as a separate body responsible for devising and introducing new techniques into the economy.

In 1956, with the Sixth Five Year Plan revision, a general reshuffle took place in planning and Gosplan was given authority over virtually all of the economic ministries.

In the spring of 1957, Khrushchev's reform abolished Gosplan and the majority of economic ministries. Gosplan received effective economic control at the All Union level and it absorbed the ministries' planning functions and a large number of material allocation departments.

An April 1960 Decree split Gosplan and transferred the long-term (over 5 years) planning functions to the State Economic-Science Council, Gosplan maintained current planning functions. A March 1963 decision changed this system. Gosplan was abolished and the new system was to be based on the difference between planning and implementation. Gosplan retained the planning activities, with emphasis on long-term planning. The U.S.S.R. Sovnarkhoz had responsibility for implementation. A new supreme organ was formed, the Supreme Council of the National Economy, to coordinate the coordinators. The 1965 reforms reestablished the ministerial system, the Supreme Council of the National Economy abolished, and Gosplan received sole planning authority. The chronic complaints over shortcomings in planning continue.

¹¹²Sysoev, p. 53.

tion of administration and policymaking.¹¹³ The top leadership can make decisions on the rate of growth or key areas for investment. It can review economic performance and exert pressure to make plans tighter. Gosplan, however, is more than an instrument for translating decisions and monitoring their fulfillment. It has the organization to handle planning, the coordination of planning, and coordination of a multitude of industrial and functional areas. It is frequently presented as the nerve center of the planning system. As overseer of national economic interests, Gosplan has powers of influencing policymaking and implementation at the very highest levels. Its extensive powers have been confirmed in criticism of Gosplan operations by the top party leadership.¹¹⁴

Much of the more detailed formulation and planning on investment priorities is conducted by individual ministries and state committees concerned with particular issues. Ministries and enterprises submit and review plans and are consulted in the planning process. They participate in various stages of both short- and long-term planning. The variety of interests and the limited resources produces stiff competition. Ministries are frequently criticized for promoting individual branch welfare above the general interests of the entire economy. Enterprises have also been criticized for promoting self-serving policies, such as setting low plan targets in order to easily overfulfill them and earn undeserved bonuses.

One of Gosplan's main roles is to coordinate the work of other economic planning bodies in order to provide for planned and proportional economic development. In the words of a Soviet economist, "Only Gosplan, as the central planning body, represents the interests of the national economy as a whole, is free from agency and local onesidedness, can completely consider the real resources and assure the effectiveness of decisions taken."¹¹⁵ The ministries' functional interests can produce narrowly focused policy orientation. Gosplan is to provide a balance to the demands of the different ministries. The very close coordinating processes and personnel overlap, however, may produce linkages resulting in conflicts of interest. A. Ishkov, Minister of Fisheries and in managerial positions with the fishing industry since 1930, for example, was head of the Gosplan Fisheries Department from 1937 to 1960.¹¹⁶ The personnel overlap may indicate significant ministerial control over economic planning and policymaking. At the very least, it indicates a conflict of interest in Gosplan's role as coordinator.

In most cases, Gosplan is assigned the role of coordinating planning

¹¹³ See David Lane, "Politics and Society in the U.S.S.R." (London: Weidenfeld and Nicolson, 1970), p. 275 ff. for a discussion.

¹¹⁴ Hahn, for example, describes Brezhnev's 1968 complaint concerning Gosplan siphoning funds meant for agricultural investment and using them for other purposes, p. 194. See also pp. 167-77 for debates between the political leadership and Gosplan.

¹¹⁵ G. Kosiachenko (Between 1940-57. Deputy and First Deputy Chairman of Gosplan) "Some Questions About Proportional Economy as the Main Task of Gosplan." *Planovoe Khoziaistvo*, January 1971, p. 76.

¹¹⁶ United States JPRS, "Contemporary Biographies," p. 160.

and industrial branch studies.¹¹⁷ An example of Gosplan work can be presented in the case of long-term planning. For a number of years, decrees and speeches by the party and government emphasized the need for and advantages of long-term planning. Gosplan and the Academy of Sciences have individually and jointly sponsored conferences on long-term planning. Changes were made in both organizations' structure. An Economic Forecasting Section was established in the Academy's Institute of Economics and in Gosplan's Economic Research Institute, and 56 temporary commissions were set up to make various types of forecasts.¹¹⁸ The 24th CPSU Congress Directives and Decrees of the Central Committee and the Council of Ministers set out the tasks for the developing a draft long-term national economic development plan for 1976-90. The U.S.S.R. Academy of Sciences, the State Committee for Science and Technology, and branch scientific research institutes of the ministries and agencies were to participate in identifying the development and timing of events and their effect on economic productivity. Gosplan, with the participation of the Academy of Sciences, the State Committee for Science and Technology and Gosstroiz U.S.S.R., were to analyze the prospects of different developments and possible directions of the economy integrate proposals of the ministries and agencies into the long-term plan.¹¹⁹ Gosplan is to work to overcome localism and narrow sectoral approaches.

Gosplan, has not been completely successful in its operations. In the ocean field it has been criticized for the lack of proportional development and poor planning that results in the loss of millions of rubles. There are noticeable and severe leads and lags in such sectors as fleet development and port and shipyard capacity. Planning in a complex economy does not necessarily result in a single policy or coordinated development.

THE STATE COMMITTEE FOR SCIENCE AND TECHNOLOGY

One of the ongoing concerns in the Soviet Union has been the coordination of research and development and the introduction of scientific and technological discoveries in the economy. The weakest link in the chain connecting science to production is the conversion of scientific discoveries into the production process.¹²⁰ The length of time spent in research, the duplication of work programs, the separation of scientific and industrial organizations, and the bureaucratic and other obstacles to implementation have long been themes in Soviet publications. The State Committee for Science and Technology under the U.S.S.R. Council of Ministers has responsibility for oversight and coordination in this field.

¹¹⁷ M. Mitaishvili, (Deputy Director of the Institute of Complex Transport Problems under Gosplan U.S.S.R.) "A Container Transport System," in *Vodnyi Transport*, December 13, 1973. The article describes studies of container traffic. Various institutions, ministries, agencies and organizations were instructed to study this field, and a Gosplan institute was designated as the lead organization for coordination.

¹¹⁸ Gertrude E. Schroeder, "Recent Developments in Soviet Planning and Incentives," in U.S. Congress, Joint Economic Committee, *Soviet Economic Prospects for the Seventies*, p. 15. A Soviet writer also describes the establishment of an expert commission under Gosplan to study economic options in the location of a car manufacturing plant. See M. Troitskii, "At a New Stage," *Novyi Mir*, January 1975, p. 171.

¹¹⁹ Kotov and Prostiakov. The article states that a difference of opinion exists on the role of forecasting in the national economic planning process. The authors promote long-term planning and the role of scientific research organizations in this process, pp. 20-3.

¹²⁰ A. P. Kirilenko, "Speech to the Fourth All-Union Congress of Scientific and Technical Societies," *Pravda*, January 25, 1973. Trans. in FBIS, January 30, 1973, p. L. 1.

The State Committee's activities in ocean uses can be viewed in the wider context of debates over centralized science policy management in the Soviet Union. The committee is the result of an almost continual process of experimentation in which the responsibilities have shifted between the various forms of the State Committee, Gosplan, the Academy of Sciences, and the ministries and other state committees. These other institutions still maintain powers in science management, but, both Gosplan, with the responsibility for overall economic planning and coordination, and the Academy of Sciences which is concerned with research, have been affected by the extension of the State Committee's responsibilities.¹²¹ The State Committee for the Introduction of Advanced Technology in the National Economy was established in 1947, abolished in 1951, restored in 1955, reorganized in 1957 and 1961, reformed in 1963, and reorganized again in 1965.¹²²

The State Committee for Science and Technology is composed of various departments, with subsectors and science councils for study and work on particular issues. A number of institutions and organizations are attached to it.¹²³ The Committee's chairmen between 1947 and 1965 have been high government officials with a background in armaments and defense technology. The present Chairman, V. A. Kirillin has a political and technical background. A member of the Academy of Sciences since 1962, he served in higher education as head of the Secretariat Department on Science, Higher Educational Institutions, and Schools (1955-63), and as Vice President of the Academy of Sciences (1963-65). Since 1965 he has served as Chairman of the State Committee and Deputy Chairman of the Council of Ministers. He became a member of the Central Committee in 1966. Dzerhman Gvishiani, another prominent member of the Committee, is the son-in-law of A. Kosygin. As one of the Vice Chairmen with an expertise in management and organization problems, he comes in frequent contact with international issues. The State Committee has a number of other members who are extensively involved in ocean issues.

The problems involved in centralized direction of science policy are difficult and it is not obvious that the Soviet system is seeking complete central control. Both the listing of State Committee responsibilities and a description of the budgetary procedures for funding scientific research indicate that some autonomy is built into the system of science policy and science management. The extensive OECD study of science management in the Soviet Union stresses the change in the Committee's responsibilities from a previous emphasis on coordination of research and development to one of "ensuring the cohesion of state policy in the field of scientific and technical progress."¹²⁴ The Committee's tasks include determining basic tendencies in science and technology development and compiling lists of the most important research projects; organizing the dissemination of information; and working to increase the efficiency of scientific research. The study

¹²¹ Graham argues convincingly, however, that some members of the Academy of Sciences actually wanted to cut back its responsibilities and limit them to the field of pure science. Loren R. Graham, "Reorganization of the U.S.S.R. Academy of Sciences," in *Soviet Policy Making* eds., Peter H. Juviler and Henry W. Morton (New York: Frederick A. Praeger, 1967), pp. 133-161.

¹²² Zaleski, 52 ff. Loren R. Graham, "The Development of Science Policy in the Soviet Union," in *Science Policies of Industrial Nations*, T. Dixon Long and Christopher Wright, eds., (New York: Praeger Publishers, 1975), p. 37 ff.

¹²³ Zaleski, p. 60.

¹²⁴ Zaleski, p. 58.

concludes that even though the State Committee's powers were expanded in 1961, it does not have supreme directive powers in research and development. The State Committee, along with other agencies conducting scientific research, come under supervision of the Council of Ministers.¹²⁵ A recent Soviet study of science management also downgrades the State Committee's powers.¹²⁶ The Council of Ministers is identified as the center of the Soviet administrative system, and the State Committee for Science and Technology is presented as a balancer whose function is to make recommendations rather than issue directives.

The State Committee uses a system of science councils to coordinate research across institutional lines. Use of the councils was proposed as a decentralization measure by the present Chairman, V. Kirillin, in 1959, while he was head of a Secretariat department and corresponding member of the Academy of Sciences. He argued against a central control agency for science policy and proposed the establishment of councils composed of representatives from agencies involved in studies for each area of science and technology.¹²⁷ Twenty-four science councils were established in the 1961 reorganization to work in particular problem areas. One of these was specifically concerned with ocean issues. The councils are to bring together leading scientists, engineers, economists and administrators from various institutions. Although their function is purely advisory, they make recommendations that are often implemented.¹²⁸ It was estimated that in the early 1960's about 7,000 scientists and specialists were involved in council activities.¹²⁹ This form of centralized oversight is apparently successful and in the 1965 reorganization, the number of councils was expanded to 33.

The method of research funding in the Soviet Union is also an indicator of the extent of central control over science policy and management. Research funding comes from two sources: (1) the central budget and (2) enterprises and economic organizations. The central budget finances work that is theoretical or of importance to the entire economy and about 30 percent is allocated for particular studies. The State Committee for Science and Technology would probably have some input in the decisions made on central budget financing of specific research. The remainder of the central budget goes to the Ministries and the Academy of Sciences which themselves determine research lines. Most of these funds are given as block grants to scientific institutes which determine their own research projects within broad national and sectoral research guidelines.¹³⁰ Enterprises and economic organizations provide funds for about half of the research costs of most ministry branch institutes.¹³¹ The discretion in the use of these funds seems rather broad.

¹²⁵ Zaleski, pp. 56-62. The ambiguous division of responsibilities is described in the field of international scientific contacts by Tony Longrigg, "Soviet Science Policy and Foreign Policy," *Survey* 17 (Autumn, 1971): 30-31.

¹²⁶ *Organizatsionno-pravovye voprosy*, pp. 130, 138-170.

¹²⁷ Graham, "Reorganization of the Academy," p. 145.

¹²⁸ Graham, "The Development of Science Policy," p. 38.

¹²⁹ U.S. Congress, Senate, Committee on Government Operations, Staffing Procedures and Problems in the Soviet Union. A Study submitted by the Subcommittee on National Security Staffing and Operations (88th Cong., 1st sess., 1963, p. 41).

¹³⁰ Djermen M. Gvishiani, "Centralized Management of Science: Advantages and Problems," *Impact* 22 (January-June 1972): 197.

¹³¹ A. Ashanina, "Sources of Financing and the Structure of Expenditures of Scientific Research Organizations," *Financy SSSR*, no. 7, (1970). Trans. in "Problems of Economics" 14 (October 1971).

The State Committee for Science and Technology has responsibilities in ocean management. In 1961 the Science Council on Ocean Research and Uses of Ocean Resources (sometimes referred to as the Scientific Council for the Study of Oceans and Seas, or the National Council for the Utilization of the Resources of the Sea) was established.¹³² It is composed of members from the Soviet Ministries of Defense, Fisheries, Geology, Transport, and the Academy of Sciences, and other agencies with maritime interests. It is divided into a central bureau and sections and in the mid-1960's was headed by Academician K. E. Fedorov,¹³³ who has been chief of the Main Administration of the Hydrometeorological Services since 1962. The Science Council on Ocean Research is a relatively high level body involved in organizational questions, and to some extent, financing research. It makes recommendations to other agencies and ministries and receives and distributes information. Some writers described it and the State Committee as the group with central jurisdiction over the budget and planning of all oceanographic programs and in control of the allocation of resources and research work in the area.¹³⁴ Others view it as a coordinating center for Soviet oceanographic and related work.¹³⁵ According to Soviet sources, the State Committee for Science and Technology and the Science Council on Ocean Research has leadership responsibility for large organizational and technological tasks related to the economic development of ocean resources, but it does not actually discuss scientific problems.¹³⁶

Friction exists in the division of responsibilities for ocean science policy and management. The Academy of Sciences, the Ministry of Fisheries, the Ministry for the Maritime Fleet, the Navy and the Hydrometeorological Service all have central oceanological institutes and associated basin institutes for conducting ocean research. According to A. Monin, the Director of the Institute of Oceanology of the U.S.S.R. Academy of Sciences, the State Committee's functions in ocean research should be abolished. Monin writes that although the bureau and commissions of the Science Council on Ocean Research and the State Committee for Science and Technology conduct "useful organizational work," the Council does not discuss scientific problems. The "... Academy of Sciences exercises leadership in oceanology, as one of the fundamental branches of science, and the Science Council should be transferred to the Academy of Sciences and united with the Oceanographic Commission of the Section of Earth Sciences."¹³⁷ Other writers criticize suggestions for expanding the powers of either the State Committee's or the Academy of Sciences councils which are presently described as only consultative bodies with no administrative or coordinating powers.¹³⁸

A complete description of the Science Council's work in the ocean field is not available. According to Soviet articles, it conducts studies

¹³² Dobrovol'skiy, "Fifty Years of Soviet Oceanology," p. 652. Zaleski, p. 60.

¹³³ Zaleski, p. 127.

¹³⁴ U.S. Congress, House Committee on Merchant Marine and Fisheries, Report on the Soviets and the Seas. Report of a Congressional Delegation to Poland and the Soviet Union, 89th Cong., 2d sess., 1966, p. 7.

¹³⁵ Shadrin, Development of Soviet Maritime Power, p. 498.

¹³⁶ A. Monin (Director of the Institute of Oceanology), "Two thirds of the World," *Pravda*, May 11, 1969.

¹³⁷ *Ibid.*

¹³⁸ *Organizatsionno-pravovye voprosy*, p. 117.

and makes work recommendations to the different agencies involved in ocean research.¹³⁹ The State Committee is represented in international forums on ocean issues. Delegates, for example, have been included in the U.N. discussions. Representatives of the committee also participated in discussions with the United States on planning the International Decade of Ocean Exploration.¹⁴⁰

The State Committee for Science and Technology and the science council system is structured to facilitate interagency communication and bring together leading figures in different disciplines. It is a high level body, but it is probably most important for its consultative and coordinating authority. Assuming that interagency law of the sea meetings have occurred in the Soviet Union, as they have in other countries, it is possible that they have been organized under the State Committee system.

THE U.S.S.R. ACADEMY OF SCIENCES

The U.S.S.R. Academy of Sciences and the affiliated Republic Academies deal with the coordination of fundamental and social science research. The Academy's mandate in science policy and coordination has been narrowed over time. The shortcomings in the work of the Academy of Sciences in research coordination were openly discussed in the Soviet Union, and the Central Committee in June 1959 approved a statute which defined the institutional powers and interaction in the Academy system more precisely.¹⁴¹ The Academy's responsibility for applied research was cut back in 1961 with the creation of the State Committee for the Coordination of Scientific Research.

The tension between centralized direction and institutional autonomy that affects Soviet science management is also apparent in the Academy of Sciences. The Academy can exert major influence through the superior knowledge and prestige of its members. The many technical considerations and analyses of appropriate hardware and design in ocean research require expertise which the Academy can provide through several of its institutes.¹⁴² As is the case with other agencies, there is membership overlap with the Communist Party. Some of the major figures in the Soviet Academy of Sciences are also members of the Central Committee, and this may work to provide both oversight opportunities for the party and increased autonomy for the Academy.

¹³⁹ The work of the Atlantic Ocean and Baltic Sea Basin section has been described. In 1969, for example, there were two plenary meetings that resulted in a variety of recommendations and requests for future work. The Plenum sent requests to the Atlantic Scientific Research Institute of Fisheries and Oceanography and the All Union and Polar Institutes to develop proposals for studies to assist the fishing industry; to the P. P. Shirshov Institute of Oceanology, the Scientific Research Institute of the Geology of the Arctic, and the All Union Scientific Research Institute of Marine Geology to study the geological structure in the Arctic; to the Ministry of the Navy and the Hydrological and Meteorological Center (Gidromettsentr) to formulate proposals to improve safety at sea; and to the Baltic Scientific Research Institute of Fisheries and the Hydrometeorological bureaus of the Northwest Territory of the Baltic republics to study water exchange in the Baltic in connection with fishery forecasts. In V. L. Tsurikov, "The Conference of Investigators of the Atlantic Ocean and the Baltic Sea," *Oceanology* no. 4 (1970), pp. 578-9 and V. L. Tsurikov, Plenary Meeting of the Atlantic Ocean and Baltic Sea Basin division," *Oceanology* no. 9 (1969), pp. 601-2.

¹⁴⁰ Wenk identifies E. I. Sklyarev and K. V. Ananichev, p. 234.

¹⁴¹ Helgard Weinert, "The Organization and Planning of Research in the Academy System," in Zaleski et al., *Science Policy in the USSR*, pp. 200-201.

¹⁴² L.I.D. Papanin and Ye. M. Z. Suzumov state, for example, that the research vessel R/V Akademik Kurchatov was built at the suggestion of the Department of Marine Research of the U.S.S.R. Academy of Sciences. See "The Development of the Soviet Research Fleet," *Oceanology*, no. 5 (1971), p. 656.

The Academy works with other research organizations to lay down the basic development trends for research and the introduction of new equipment. In developing a single research and technical policy, this top layer of the scientific structure receives assistance from the relevant ministries and agencies planning economic development. The research trends are reflected in the long-term plan of scientific and technical progress that is endorsed by the U.S.S.R. Council of Ministers.¹⁴³

The Academy's extensive powers of central supervision and policy participation are limited, however, by those subordinate institutions it would supervise. Research institutes both within the Academy and ministry system pursue independent policies and do not necessarily adhere to the priorities the Academy attempts to promote. The pursuit of self interest was observed earlier in the case of ministerial supervision of research institutions. "It is clear from the complaints of those who are pressing for more control of Academy science that a considerable measure of freedom exists. . . . Laboratories of research institutes exist in 'a state of feudalism'" working in isolated spheres.¹⁴⁴ Change in the system of management and policymaking is not easily instituted. In 1963, for example, the Academy was given increased authority to direct university research. Bureaucratic routine and allocation of power are not easily changed, and a conflict arose when the universities resisted. The policy change was "only partially successful."¹⁴⁵

Nevertheless, the Academy of Sciences appears as a focal point, both in its work developing trends of scientific research and in its interaction with numerous ministries and agencies. The Oceanographic Commission and the Institute of Oceanology are the primary agencies in the Academy working in scientific research and ocean science policy. Aspects of oceanography are studied by the Academy's Institutes of Marine Geophysics, Biology, Zoology, Earth Physics, and Acoustics. The Academy's Institute of State and Law has a section on international law of the sea issues which studies ocean policy.

The Oceanographic Commission of the Academy of Sciences began work in 1951 with broad responsibility in the coordination of all oceanographic research and providing oversight and approval of Academy research.¹⁴⁶ In 1969 the Oceanographic Commission had 54 members, including oceanographers and specialists in allied fields working in the Academy of Sciences of the U.S.S.R. and the Ukraine,

¹⁴³ Sysoev, p. 111. Graham, "The Development of Science Policy," p. 38. See also U.S. Congress, Senate Committee on Government Operations, Organizing for National Security. Inquiry of the Subcommittee on National Policy Machinery, 86th Cong., 2d sess., 1960, p. 402 for a description of the interagency committees producing papers in the late 1950s on the Main Directions for Scientific Research.

¹⁴⁴ Weinert, p. 271.

¹⁴⁵ Graham, "The Development of Science Policy," p. 38.

¹⁴⁶ In a description of the Commission's work in 1968, a Soviet scientist stated that the Oceanographic Commission coordinated research of inter Union plans. The Commission's Bureau discussed research expedition plans of the U.S.S.R. and the Ukraine Academy of Sciences, and approved them with important suggestions, particularly on strengthening the coordination of work. L. A. Zenkevich, "The Work of the Oceanographic Committee in 1968," *Oceanology*, no. 3 (1969), pp. 446-9.

Moscow and Leningrad Universities, institutes of the Ministry of Fisheries, the Navy, and the Hydrometeorological Service. Twenty-four of these members act to form the Commission's Bureau.¹⁴⁷ A large part of the Commission's work involves publication of the journal "Oceanology," as well as specialized research collections. The Commission also works to prepare the Five-Year Plan for the study of oceans and seas, and define the basic course of scientific trends in ocean research.¹⁴⁸ In addition, the Commission represents a body called the National Committee of Soviet Oceanographers in international forums. The National Committee apparently meets periodically to discuss issues and define positions.¹⁴⁹ As was noted earlier, a Soviet scientist in 1969 proposed to further increase the Commission's power by transferring the responsibilities of the State Committee for Science and Technology in ocean issues to the Oceanographic Commission.¹⁵⁰

The Oceanographic Commission relies on the work of its specialized sections which are expanded in number as new areas are brought into study. In 1969 there were 10 sections covering about 200 scientific bodies and institutions of higher education.¹⁵¹ The range of topics includes marine research methods, underwater research, study of sea coasts and estuaries, geophysics and geotectonics of the ocean floor, as well as a working group on oceanographic tables and standards. In 1970 two new sections were added, one on ocean geography for the purpose of encouraging broad scale studies, and one on the continental shelf for studying the formations of marine sediments.¹⁵² Each section is headed by a chairman and a bureau. The sections periodically organize conferences with participants from other agencies. Numerous scientific institutes and planning and design organizations may be working in a field. The section will call meetings to coordinate research in the field, promote development and popularize it, generate funding and the development of research and methods.¹⁵³ Conferences will usually include representatives from several dozen organizations.¹⁵⁴

Much of the basic oceanographic research is conducted by the Academy of Sciences. The Institute of Oceanology of the Academy of Sciences U.S.S.R. (now known as the P. P. Shirshov Institute of Oceanology) was reorganized by a government decree in 1945 to plan and conduct research operations. The Institute of Oceanology works in close cooperation with many other organizations. An active

¹⁴⁷Ibid. The career pattern of one member of the Bureau, I. S. Isakov, is illustrative of the specialization and overlapping organizational affiliations. In the course of his career Isakov was an Admiral of the Soviet fleet, an oceanographer, a Deputy Chairman of the Oceanographic Commission, and Deputy Minister of the Maritime Fleet. See "Obituary—Ivan Stepanovich Isakov, *Oceanology*, no. 1 (1968), pp. 139–40 and Shadrin, "Development of Soviet Maritime Power", p. 343 citing TsNIIMF Transactions, Vol. 133, pp. 7–10.

¹⁴⁸A. D. Dobrovolskiy, "Oceanographic Commission of the U.S.S.R. Academy of Sciences During 1969," *Oceanology*, no. 5 (1970), p. 732.

¹⁴⁹L. A. Zenkevich, et al., "The Scientific Basis of the 10 Year Global Oceanic Research Program," *Oceanology*, no. 5 (1968), p. 625. L. A. Zenkevich, "The Work of the Oceanographic Committee in 1968," pp. 446–8. A. D. Dobrovolskiy, "Oceanographic Commission of the U.S.S.R. Academy of Sciences During 1969," pp. 730–33.

¹⁵⁰A. Monin.

¹⁵¹L. A. Zenkevich, "The Work of the Oceanographic Committee in 1968," pp. 446–9.

¹⁵²Dobrovolskiy, "Oceanographic Commission of the U.S.S.R. Academy of Sciences During 1969," pp. 730–733.

¹⁵³O. B. Mokiyeyskiy, "Underwater Research Section of the Oceanographic Committee, U.S.S.R. Academy of Sciences," *Oceanology*, no. 3 (1966), p. 450.

¹⁵⁴The organizational meeting of the Section on Geography was held in 1970 and included representatives from thirty-seven organizations. See A. D. Dobrovolskiy, "Twenty years of Work by the Oceanographic Commission of the U.S.S.R. Academy of Sciences," *Oceanology*, no. 5 (1971), pp. 755–7.

part in the Institute's projects is taken by scientists from Leningrad University, Moscow State University, the Zoological Institute, the State Oceanographic Institute, the Far Eastern Hydrometeorological Institute, the Naval Hydrographic Board, fisheries institutes and other agencies of the U.S.S.R. Academy of Sciences and ministries.¹⁵⁵

The Academy system apparently provides a center for coordination and organization of ocean research. Several examples of these activities are described in the press. An international issue, for example, involved the Academy of Sciences and the State Committee for Science and Technology. The Bureau of the Oceanographic Commission heard the report of a member of the Institute of Oceanology on the need for developing the International Decade of Ocean Exploration (IDOE). The Bureau felt that the U.S. proposals for IDOE were unsatisfactory and called for the preparation of a Soviet plan. A working group was formed composed of fourteen oceanologists from different specialized fields. It heard the opinions of different scientific organizations and individual specialists and compiled a preliminary program plan. The plan was sent to the State Committee for Science and Technology for subsequent implementation.¹⁵⁶

In another instance, the Academy of Sciences, Moscow State University and the Ministry of Fisheries were involved. In 1969, at the instigation of the Ministry of Fisheries, the Oceanographic Commission's working group on oceanographic tables and standards jointly with the State Oceanographic Institute convened a special conference on the preparation of new Soviet oceanographic tables. The Conference decided that because of the fishery industry's need for certain tables, a number of them would be reprinted, and it requested that the Oceanology Department of Moscow State University undertake to prepare updated tables.¹⁵⁷

The U.S.S.R. Academy of Sciences Institute of State and Law may also act in an advisory or technical capacity on ocean issues. The Institute has an International Maritime Law Section and staff which studies ocean developments.¹⁵⁸ The Institute has sponsored the publication of a number of books describing basic problems in contemporary international law of the sea. In "The Ocean, Technology and Law",¹⁵⁹ the international problems are analyzed in relation to scientific-technological progress. "For the first time in history, mankind faces the need in these wide open spaces [the oceans] to more effectively and also more rationally regulate methods and rates of exploitation of the ocean's living and mineral resources. This situation, in turn, raises a need for more precise definitions and improvement of legal

¹⁵⁵ A. S. Monin and V. G. Bogorov, "Twenty years of the Institute of Oceanography, U.S.S.R. Academy of Sciences," *Oceanology*, no. 6, (1966), p. 879. The Institute of Oceanology has, for example, conducted extensive work on studies of iron manganese nodules, and organizes research expeditions in which scientific members from many other institutes participate. See A. I. Blazhichishin, and Ye. M. Yemel'yanov, "Geological Investigations in the Baltic Sea aboard the Research Vessel 'Professor Dobrynin,'" *Oceanology*, no. 6 (1969), pp. 899-908. P. L. Bezrukov, "The 43rd Cruise of the Research Vessel 'Uityaz' in the Central Pacific," *Oceanology*, no. 1, (1969), pp. 153-60.

¹⁵⁶ Zenkevich, "The Work of the Oceanographic Commission in 1968," p. 447.

¹⁵⁷ Dobrovol'skiy, "Oceanographic Commission of the U.S.S.R. Academy of Sciences During 1969," p. 731.

¹⁵⁸ M. I. Lazarev, "International Maritime Law: A Glimpse into the Future," *Sovetskoe gosudarstvo i pravo*, no. 1 (1971).

¹⁵⁹ M. I. Lazarev and L. V. Speranskaia, eds., *Okean, Tekhnologii, Pravo* [The Ocean, Technology, and Law] (Moscow: Iurisdicheskaya Literatura, 1973), trans. Terese Sulikowski for Resources for the Future. Selected chapters published in "Ocean Development and International Law Journal 3" (1, 2, 1975).

regulations, and sometimes, revision of definitions of international legal concepts on state activities in the world ocean . . . Scientific-technological progress not only creates new institutions, but also has a great impact on the classical institutions of international maritime law."¹⁶⁰

Another collection of articles published under Institute auspices, *Contemporary International Law of the Sea* also examines the theme of scientific-technological change and the need for legal regulation.¹⁶¹ The study lists trends in ocean development and states that "Soviet law of the sea lawyers (iuristy-marinisty) are completely correct in emphasizing that world ocean activities are unthinkable without regulation by progressive legal norms."¹⁶²

The role of the Academy of Sciences and outside experts in the ocean policymaking process is not known. Establishing institutes and publishing studies does not signify that experts have access to policymakers or influence in policy formulation. It is interesting to note, however, that a number of writers whose work is included in Academy affiliated studies, have been members of the Soviet delegations to the United Nations Law of the Sea discussions.¹⁶³ Also, the need for expert advice has been repeatedly stressed by the Soviets themselves, and indicates an attempt to integrate technical competence into decisionmaking.

An article by A. Zhudro, Deputy Director of *Soiuzmorniiproekt* and member of the Soviet delegation to the U.N. Law of the Sea sessions for example, describes the need for accurate information because of the development and growth of international transport ties and international economic relations. "Naturally, the administration of the Soviet maritime fleet, the correct planning and prognostication of its activities, and raising its effectiveness is impossible without a strict scientific, that is a maximum exact accounting, of these international conditions."¹⁶⁴

The use of expert advice is very apparent in the case of long-term planning. Soviet writers frequently refer to the effects of the technological revolution and the importance of long-term planning in order to direct and make the best use of the dynamic growth of science and technology. The Academy of Sciences of the U.S.S.R., the State Committee for Science and Technology, branch scientific research institutions of the ministries and agencies, and the Academies of the Union Republics are to participate in long-term planning, preparing alternative forecasts for scientific-technological progress. An article in *Planovoe Khoziaistvo*, published under the auspices of Gosplan, states that whereas previously scientific institutions participated only in the preparation of preplan materials and the identification of possible directions for development, they are now participating at all levels of both long-term and the Five Year Plan formation. They work in preparing preplan materials, and also in choosing the

¹⁶⁰ Lazarev and Speranskaia. p. 4.

¹⁶¹ M. I. Lazarev, ed., *Sovremennoe mezhdunarodnoe morskoe pravo: Rezhim vod i dna mirovogo okeana* [Contemporary International Law of the Sea: The Regime of the Ocean Waters and Sea Floor] (Moscow: Nauka, 1974)

¹⁶² Ibid., p. 305.

¹⁶³ The following writers were on the Soviet United Nations delegations: P. D. Barabolia, G. E. Kalinkin, M. I. Lazarev, B. N. Nechaev, S. N. Smirnov, A. A. Volkov. See Appendix.

¹⁶⁴ A. Zhudro, "International Navigation and Management of Maritime Transport," *Vodnyi Transport*, December 18, 1973.

plan decisions and defining the most effective ways for achieving the goals.¹⁶⁵

Information is required for decisionmaking on complex technical and policy issues, and the Soviet leadership has emphasized the need for a scientific basis of decisionmaking. Marxism-Leninism is presented as a scientific approach to understanding and governing society and there are frequent calls for greater reliance on expert information.¹⁶⁶ Western analyses of other aspects of the advisory system in the Soviet Union also indicate that studies are conducted by Academy of Sciences institutes and evaluated by the government and Communist Party apparatus.¹⁶⁷

CONCLUSION

The process of Soviet decisionmaking on current ocean policy has not been discussed in detail in this article. But, regardless of the approach one uses, or whether one assumes rational or irrational decisionmaking behavior, policy makers face the need to at least nominally consider a spectrum of domestic requirements and goals, and in some cases the international setting, in developing national policies.¹⁶⁸ The modern industrial state involves complex decisionmaking on complex issues and political leaders depend on expertise. The role of experts in supplying information can lead to strengthened interest groups. Schwartz and Keech in their study of the domestic politics surrounding the 1958 Educational Reform Act hypothesize "that the more modern the society, the more dependent it is on technical expertise," and the need for expertise works to improve interest group access to policy influence. The groups will have greater access, the greater the disputes among top leaders, the larger and more collective the top leadership, and the more problematic and technical the issue.¹⁶⁹

¹⁶⁵ F. Kotov, I. Prostiakov, "The Participation of Scientific Organizations, pp. 20-1.

¹⁶⁶ See, for example, V. Zagladin, "The Revolutionary Process and CPSU International Policy," *Kommunist*, no. 13 (1972), pp. 14-26. Trans. in FBIS, October 6, 1972, p. A. 1 ff.

¹⁶⁷ See, for example, Oded Eran, "Soviet Area Studies and Foreign Policy Making" GE74TMP35 (Santa Barbara, Calif.: General Electric-TEMPO Center for Advanced Studies, September, 1974) GE 74TMP35 for an analysis of the Academy of Sciences area studies institutes and their role in policy advising. Zagladin also writes that considerable work is being done in the CPSU Central Committee Institute of Marxism-Leninism and the Academy of Social Sciences, and within the framework of the U.S.S.R. Academy of Sciences by the Institute of World Economics and International Relations, the Institutes of the Far East, Oriental Studies, Africa and Latin America and a number of others. In addition, he states that new institutes have been founded to assist in this work, such as the Institute of the International Workers Movement, the Institute of Scientific Information for the Social Sciences and the Institute of the United States, "The Revolutionary Process," p. A1-A2. The Foreign Policy Research Institute, "The United States and the Demands of Detente Diplomacy." A Conference Report Research Monograph Series Number Fourteen, (Philadelphia: Foreign Policy Research Institute, May, 1973), pp. 14-16, describes the Communist Party-ministerial-institute interaction in detente policy and SALT negotiations. Also see Garthoff on the subject of the SALT advisory system.

¹⁶⁸ John Steinbruner, *The Cybernetic Theory of Decision: New Dimensions of Political Analysis* (Princeton: Princeton University Press, 1974). Steinbruner discusses, analyzes, and applies three different decisionmaking models: the rational model, the cybernetic model, and the cognitive model.

¹⁶⁹ Joel J. Schwartz and William R. Keech, "Group Influence and the Policy Process in the Soviet Union," *American Political Science Review* 62 (September, 1968): 840-51. An extensive body of literature exists on the formation and growth of interest groups in the Soviet Union. For a sampling of this literature, see, Sidney I. Ploss, ed. *The Soviet Political Process—Aims, Techniques and Examples of Analysis* (Waltham, Mass.: Ginn and Co., 1971); H. Gordon Skilling and Franklyn Griffiths, eds., *Interest Groups in Soviet Politics* (Princeton: Princeton University Press, 1971) Jerzy Wiatr, "Political Parties, Interest Representation, and Economic Development in Poland," *American Political Science Review* 64 (12, 1970), p. 1239 ff. describes interest groups and the role of the P. U. W. P. in Poland. Troitskii also writes about interests in the Soviet Union. Many ministries, departments, scientific institutions and design institutions were involved in preparatory decisionmaking concerning where to locate the major automobile manufacturing factory. "And although the specialists studied the question deeply and thoroughly, it was not possible to come to a single opinion on where to build the plant." p. 169.

Aside from the increasingly complex and difficult decisions required by the modern industrial state, other constraints on party power in policy leadership and guidance exist. There are many indications that the party is not a unitary leader. Although a tendency toward consensus politics is present in the Soviet Union, an increasing amount of literature documents the fragmentation and differing policy objectives at the top levels of the CPSU and the use of policy conflicts for political positioning. "To govern is to choose."

Along with the problems of disagreement within the top party leadership, there are differences of opinion on the appropriate policy or procedures at the various other levels of power. The role of Soviet government institutions as a source of independent interests and policy preferences is a relatively unstudied area. The exercise of ministries' administrative prerogatives can result in policymaking powers. The execution and formulation of policies are part of a continuous process. Administration carries many implicit policymaking duties and it entails implementation, information input, and actual policymaking. The Soviet state apparatus is usually presented as merely an administrative system implementing Party directives. State powers in policy decisions, however, are greater than generally assumed, particularly since technical and management issues have policy implications. The process of implementation itself also impacts on policymaking.¹⁷⁰ The execution of the 5 Year Plan provides many opportunities for the alteration or sabotage of the party's objectives. The imposition of unwanted plans and goals produces manipulation and distortion of production inputs and outputs. Experience shows that directives often do not achieve their objectives and that appropriate incentives must be designed and specialists consulted in order to achieve desired goals.

In addition to state administrative authority and implicit policymaking powers, the overlapping and conflicting jurisdiction between the party and state further work to confuse precise duties and complicate procedures. Soviet ocean policy is not the product of a centralized agency or decisionmaking process. Although top political leaders maintain the right to set national policy, and make attempts to at least coordinate the policymaking process, Soviet institutions with ocean interests participate in ocean policy formulation.

¹⁷⁰ Richard Cornell has summarized the powers deriving from implementation: "It is one thing for a small elite, the Communist Party of the Soviet Union, to arrogate to itself the function of political leadership. It is another for the decisions reached by this elite to be implemented efficiently and effectively. The manner of implementation, especially the broader and more general the decision, often becomes in itself an act of decisionmaking. The way in which details are filled in, or broad policy statements or goals are interpreted, can affect the spirit if not the letter of the decision. In a country as large and as populous as the Soviet Union, with a complex and sophisticated economy, it is impossible for the decisionmakers themselves to serve also as the implementors and administrators." Richard Cornell, ed., *The Soviet Political System* (Englewood Cliffs, N.J.: Prentice-Hall Inc., 1970), p. 244.

APPENDIX

SOVIET INSTITUTIONAL REPRESENTATION IN THE UNITED NATIONS COMMITTEE ON PEACEFUL USES OF THE SEABED AND OCEAN FLOOR BEYOND THE LIMITS OF NATIONAL JURISDICTION AND THE LAW OF THE SEA CONFERENCE, 1968-1975¹

Soviet delegate affiliation at the United Nations sessions on the law of the sea indicates a wide representation of the "domestic constituents" of Soviet ocean policy. As a gross indicator, the tabulations show the extent of Soviet institutional representation.

Soviet Institutions	Delegates ²	Sessions ³
Ministry of Foreign Affairs -----	17	27
Treaty and Legal Department -----	14	42
Soviet Mission to the UN -----	6	20
Subtotals for Ministry of Foreign Affairs and its sub- divisions -----	(37)	(89)
Ministry of Defense -----	7	27
of which, Navy -----	(5)	(17)
Ministry of Fisheries -----	4	12
Ministry of Geology -----	3	10
Ministry of Maritime Fleet -----	6	13
Subtotal for economic ministries -----	(13)	(35)
State Committee for Science and Technology -----	4	15
U.S.S.R. Academy of Sciences -----	3	3
Unaffiliated -----	5	5
Total -----	69	174

¹ The data indicating Soviet delegation composition was compiled on the basis of UN Records by William Durch and Robert Friedheim at the Center for Naval Analysis, Law of the Sea Project.

² The number of different representatives from Soviet institutions. Support staff is not included.

³ Total number of sessions the institutional representatives attended.

Some general observations on Soviet institutional representation at United Nations Law of the Sea discussions can be made:

—The United Nations discussions in the early stages were handled mainly by the Soviet Mission to the United Nations and the Ministry of Foreign Affairs.

—Only three agencies, the Ministry of Foreign Affairs, the Ministry of Defense, and the State Committee for Science and Technology were continually active throughout the discussions.

—After the General Assembly decision in 1970 to convene a comprehensive Law of the Sea Conference, Soviet institutional representation became broader. With the March 1971 session, the Treaty and Legal Department, and the Ministries of Fisheries, Maritime Fleet, and Geology began to be consistently represented.

—A few of the delegates switched institutional affiliation in the course of the UN proceedings and some delegates represent more than one agency. This also gives the Academy of Sciences greater representation than the data at first indicates. Three delegates (Movchan—Treaty and Legal Department; Volkov—Ministry of Geology; and Metalnikov—State Committee) are at times listed as being affiliated with the USSR Academy of Sciences.

—There is significant continuity of delegate representation. Most of the institutions have had at least one representative (seven total) present at more than half of the sessions. The buildup of expertise is also apparent by the composition of the delegation. A number of the Soviet delegates have published extensively on questions of ocean uses and maritime law.

Soviet institutional representation at UN law of the sea discussions	Ad Hoc 1968	March 1969	August 1969	March 1970	August 1970	March 1971	August 1971	March 1972	August 1972	March 1973	August 1973	December 1973	Caracas 1974	Geneva 1975	New York 1976
Ministry of Foreign Affairs	1	2	2	2	2	1		1		1	1		6	8	
Treaty and Legal Department, Ministry of Foreign Affairs						2	5	3	6	4	7	3	5	7	
Soviet Mission to the United Nations Ministry of Foreign Affairs	5	3	2	2	1	2		1		3		1			
Ministry of Defense	1	1	2	1	2	2	2	1	2	2	2	1	3	5	
Ministry of Fisheries	1					1	1	2	2	1	1		1	2	
Ministry of Geology					1	1	1	1	1	1		1	1	2	
Ministry of Maritime Fleet						1	1	1	1	1	1		3	4	
State Committee for Science and Technology	1	1	1	2	1	1	1	1	1	1	1		2	1	
U.S.S.R. Academy of Sciences	1					1							1		
Total delegates at sessions	10	7	7	7	7	12	11	11	13	14	13	6	22	29	

THE "CIVILIAN" FLEETS

NOTES ON MILITARY-CIVILIAN INTEGRATION IN THE U.S.S.R.

(By Carl G. Jacobsen¹)

SUMMARY

Five concerns, or queries sparked this investigation:²

(1) *The organizational aspects of civilian fleet units*

(a) How do they relate to the regular military (naval) forces in terms of personnel training, equipment and logistics as well as the more structural aspects such as lines of command, etc.?

(b) How are their military tasks coordinated with civilian duties and concerns defined by the Ministries of Fishing, Transport, Shipping, Trade and other departments and authorities?

(2) *The operational aspects*

What objectives are the civilian fleets assumed to pursue under peace and war conditions and what tasks would one expect them to perform? What can they do or not do under various sets of circumstances?

(3) *The economic aspects*

To what extent do sea transport, fishing and oceanographic studies relate to the economic problems of the Soviet Union? Are their activities determined by predominantly economic considerations rather than, or in addition to the military ones? What is their input into the Soviet economy? What is the relative ratio between military and civilian functions?

(4) *The political aspects*

How are these units tied to political organizations such as the KGB and other institutions which deal with intelligence and the collecting and dissemination of information? Do they have a political impact in addition to what we assume are their main military and economic missions?

(5) *An overall summary of the strategic situation*

Where do these maritime forces fit in and what special problems do they have? What seems to be the future projection in the picture of Soviet strategy for the North Atlantic?

It must be stated at the outset that for the Western analyst there are considerable gaps in available information on these subjects.

This is not due solely to security-related sensitivities, and censorship. Most Western governments have at least some information on the activities of the Soviet civilian fleets within and/or near their territorial

¹ The author is a Professor of International Relations at Carlton University, Canada.

² Professor Nils Orvik, Letter to this author, November 5, 1974. The subsequent analysis was published, albeit in somewhat different form from that here presented, as part of Queen's University's National Security monograph series. January 1976.

waters. But the data is all too often haphazardly collected, if at all; as often as not it is disbursed among a motley variety of bureaucratic organs, in accordance with differing subjective perceptions of functional interests. The efficient collating of these sources lies beyond the scope of this analysis. (It would demand the resources of government.) Tentative efforts have been undertaken. The FAO is presently preparing a comprehensive world list of fishing vessels.³ This, and analogous efforts by shipping agencies,⁴ as regards merchant ships, and establishments such as "Jane's," the World Data Centers and the U.S. NODC,⁵ as regards at least some types of research vessels, point the way.

There furthermore remain also a number of as yet untapped and unclassified Soviet sources of note. One thinks especially of the publications and libraries of the specialized marine, fishing and research institutes in Leningrad. Only fragments of these are easily available in the West.⁶ They obviously ought to be tapped more fully. Unfortunately, the restricted scope of this analysis precludes the exercise.

Now, with these caveats in mind—the "answers" as they emerge from our study may be delineated as follows:

³Information provided by Dr. Beckett of the (Canadian) Department of the Environment's International Fisheries Office, Ottawa, April 1975. There are also a number of regional compilations, some of the most thorough come from The International Commission for the North West Atlantic Fisheries, headquartered in Dartmouth, N.S., Canada. This issues tri-annual Lists of Fishing Vessels, with summaries of the fishing effort of the intervening years. The latest available list was for 1971, published in October 1972; a 1974 list was scheduled for 1975 publication but was still unavailable at the time of writing. They summarize the number, size and type of ships of nations fishing in the area. Even this source is woefully inadequate for all but the most basic of data. But it does document the growth of Soviet involvement (from 111 vessels totalling 126,596 tons in 1959 to 502 vessels totalling 782,223 tons in 1971), the extraordinary size of the Soviet vessels (see above; none under 150 tons), and the Soviet deployment of experimental ships (4 in 1971; none are noted under other flags).—The same agency also issues annual Statistical Bulletins (as with the above, the compilations are gross in character), the latest available edition of which, for 1972, was published in 1974; and annual Redbooks with conference proceedings and reports.

⁴By national shipping federations (the annual Norwegian publications are among the more comprehensive) and by the various shipping consortiums. It should be noted however that these remain somewhat parochial in focus.

⁵Jane's Fighting Ships. Edited by Captain John E. Moore, London, England. Jane's, the famed quasi-independent British collator of available world armaments (and related) data, provides perhaps the most useful source of information pertinent to a study such as this—even if it may be rather too discriminating at times.

For fuller compilations of Soviet vessels one must turn i.e., to the ICSU's World Data Center System, which for our purposes means World Data Center A in Washington (B is in Moscow), and the U.S. National Oceanographic Data Center. The former publishes Catalogues of Data received from affiliated organs, on fixed station and vessel cruise programs, and arranged according to sponsoring institutions. Again, the data is useful for overviews, but sparse on detail. Continuous up-dates are published. They also published a volume on Oceanographic Vessels of the World in 1963, and while there is no single more up-to-date edition, the NODC does periodically issue Up Date Sheets of this work (Chart III B is taken from the latest such sheet, dated December 1974; it might be interesting to note that of the 150 Soviet ships here enumerated, only 16 are of such vintage as to have appeared also in the 1963 collection). Although the NODC relies mostly on data provided through World Data Center A, they do also incorporate data received from other sources, including the C.I.A. Nevertheless, the dearth of detail information remains glaring. Furthermore: information on complementary Soviet Naval research vessels is not included at all in these sources.

Finally, some other sources of related data deserve mentioning. One might mention UNESCO's inter-governmental Oceanographic Commission Technical Series and International Marine Sciences Newsletter; the more narrowly regionally focused data issued by The International Council for the Exploration of the Sea, headquartered in Charlottenlund, Denmark, and by such institutions as The Arctic Institute of North America; one-shot efforts such as the U.S. Naval Hydrographic Office's 1958 Oceanographic Atlas of Polar Seas, which lists Arctic and Antarctic research investigations (including those of the U.S.S.R.); and more peculiar efforts, such as the Canadian Department of the Environment's forthcoming Bibliography on Northern Sea Ice and Related Subjects (a useful guide to source material on i.e., oceanography, meteorology and effects on navigation).

⁶Most of the books published can be obtained (the most important publisher for our purposes, aside from Nauka of Moscow, is The Hydrometeorological Service's Gidrometeoizdat in Leningrad); the journals and monographs are much more rare.

(1a) The civilian fleets have clearly not been organizationally, structurally integrated with the navy proper. They each have functionally autonomous administrative structures, whose ongoing concerns focus on the attainment of civilian tasks, and on the successful meeting of economic plan quotas and requirements. Each has its own functional research facilities, and its own specialized personnel training schools.

It is known that a certain number of military advisers or consultants are attached to the higher planning organs of the civilian fleets, and that a certain number of both their oceangoing personnel and their school instructors are drawn from reservist ranks (as also in a number of Western countries). But exact figures are inaccessible. It is furthermore presumed that a certain, small number of active naval personnel are assigned to the civilian fleets, to operate the more sensitive types of equipment, and to ensure that the maximum military relevance is wrought from dual-purpose equipment. Yet again, exact numbers, not to mention job descriptions, are not available.

As concerns equipment there are obvious inferences to be drawn from the traditional heavy Soviet stress on standardization, and interchangeability of parts. Hulls, engines, radars, sonars etc. are procured through defense industry ministries such as shipbuilding, medium machine building and general machine building, and radio and electronics. Specifications from civilian fleet organs are channeled through the military industrial commission, which is presumed to be responsible for the meshing of civilian and naval requirements.

Thus some shipyards, quays and other port facilities are highly specialized, and functionally oriented to the satisfaction of the peculiar demands of particular fleet branches (such as refrigeration trawlers, container transports and/or elements of the submarine forces.)⁷ But when dictated by calculations of optimality, economics, or expediency, integration of facilities has been and is encouraged: it is, for example, known that Leningrad's Admiralty and Baltic yards have ongoing extensive shipbuilding programs of both civilian and military character, as the city's Sudomekh complex probably does.⁸

(1b) It is believed that the day-to-day coordination of military and civilian tasks is conducted through special committees within the responsible ministries, committees which in the civilian ministries count naval representatives among their members, and which rely heavily on the "Automatic Control System" (ACS) as a conduit both for collation of data and for dissemination of decisions. But there is little doubt that civilian concerns predominate within these ministries. There must therefore be recourse to higher authority in cases where military requirements burst the seams of established coordinating procedures.

In such instances there is reason to doubt the relevance of the military-industrial commission. It is thought that its independent authority is restricted to the more technical considerations of compatibility evaluation and standardization, and that it otherwise functions primarily as an interdepartmental flow of information. It has been

⁷ See i.e., treatment by Sysoev, *Economics of the Soviet Fishing Industry*, Izdat. Pishhevaya Promyshlennost, Moscow, 1970.

⁸ M. McGwire, Chapter 23 of *Soviet Naval Policy: Objectives and Constraints*, Praeger, 1974; for further references, see therein cited footnotes.

delegated procedural and policy-supervising authority. But novel policy decision remains the prerogative of higher authorities. In cases such as here intimated one thinks of the Ministry of Defense (and through it the General Staff) and the Council of Ministers—with decisions of principle being referred right up to the Politburo apex (in the first instance to Ustinov's staff; if necessary to the Politburo as a body).

(2) As discussed in the analysis proper:

The merchant fleet is in peacetime expected to provide autonomous ocean transport capability; it is expected to provide third countries with a strategically important alternative to dependence on capitalist transport organs; it is expected to prove an increasingly valuable source of foreign exchange; and finally, to project a peaceful, friendly, positive image of the mother country. It is furthermore designed to provide auxiliary transport potential to the navy, in peace as also in war.

The fishing fleet was procured and expanded as a prime instrument of the Khrushchev and current regime's priority on drastic improvements in the nation's dietary patterns, and its protein intake; the oceanographic fleets grew in parallel, concentrating first on the character and potential of the ocean's resources, later also on those of the ocean floor. Both the fishing and the oceanographic fleets were from the beginning assigned certain intelligence duties vis-à-vis Western fleet activities. And this monitoring function was subsequently expanded to reflect the emergence of naval theory and capabilities from their erstwhile coastal confines. As Admiral Yakovlev testified, these fleets are today charged with major responsibilities in the fields of target location, and the securing of optimal submarine fleet command and control venues. While the civilian fleets' economic contribution is indisputable and can be chartered, their military functions, whether passive intelligence or operational collaboration, must remain impervious to assessment; too many of the relevant efficiency indicators are beclouded by security dictates.

(3) The economic import of the civilian fleets is documented below. They play a vital role in satisfying domestic requirements as regards transportation, dietary desiderata and protein needs; for the future they furthermore promise to play as significant a role in the procuring of mineral and energy resources as they play today in the meeting of alimentary aspirations. At the same time, divertible services and produce serve as previously noted as valued earners of foreign exchange. Since the military relevance of the civilian fleets is not quantifiable, neither is the relative ratio between civilian and military functions.

But, with no prejudice to that correlation, it must nevertheless be noted that a Soviet reluctance to accommodate naval aspirations detrimental to civilian fleet concerns can be demonstrated. The high priority expansion of the navy over the last decade or so, from an onshore establishment to one with global means and aspirations, was not allowed to interfere with the needs of the civilian fleets. Naval yards were expanded, some new ones were built, and a measure of naval-civilian yard integration was pursued—where, and only where, such was considered mutually beneficent and cost-effective. But as a general rule it appears that the Soviet Navy has “to work within the restricted

limits of that it already has"; there is "no indication that surface yard capacity has been switched from civilian to warship construction."⁹ And if this is correct, then it would seem that Soviet authorities have a rather high appreciation indeed of the economic worth of the nonmilitary fleets.

The conclusion must be that while the civilian fleets have definite and important military tasks, such tasks are usually assigned and calibrated so as to cause a minimum of disruption to their civilian assignments.

(4) As with all Soviet organizations, the civilian fleets have active Party branches, and KGB representation; in view of their military tasks, and the known presence of a limited number of naval personnel, one presumes that larger fleet units also have GRU representatives on board to supervise the efficient collating of military-related data. But excepting the peculiar role of the GRU and naval personnel and functions, there is little evidence to exaggerate the role of either the Party or the KGB beyond that enjoyed by these organizations in analogous land establishments. In fact, it may be fairest and most illustrative to equate the role of Party officers on board Soviet vessels to the role of chaplains aboard Western vessels, in numbers as also in functions. This seems to be the case on naval ships,¹⁰ and there appears little reason to think it otherwise on the other fleets' vessels.

The case of vessels that frequent foreign ports is different. These are believed to have somewhat higher complements of KGB personnel, if only because of the Soviet stress on the import of political appearances.

As concerns the political impact of the fleets in general, this is two-fold. On the one hand there is this Soviet appreciation of the political utility of well-conducted foreign port visits. Of perhaps greater importance is the domestic political fallout from the economic contributions of the civilian fleets, or rather: the political fallout from not having to forego these contributions.

(5) Finally: the capabilities and tasks of the civilian fleets are correlated with naval requirements to the maximum extent possible without placing their nonmilitary endeavors in serious jeopardy. The priority assigned to their nonmilitary responsibilities is such that they cannot be described as automatic auxiliaries to the armed forces establishment, except in times of extreme crises. But they are used as natural complements. To the extent that their inherent capabilities and normal deployment patterns allow them to satisfy routine naval requirements at minimum cost to their other tasks, to that extent they are so assigned. They provide reserve transport and intelligence monitoring capacity; they "survey and mark future battlefields;"¹¹ they plan an important role in the distribution and control of underwater devices of strategic import; and they perform a significant role in the perfecting of command and control means and practice.

In times of war their facilities would become appendages to those of the navy proper. So also in times of crises: as there was no question

⁹ McCwire, in "Soviet Naval Policy—," *op. cit.*

¹⁰ See Proceedings of Dalhousie University's 1973 Maritime Seminar (published as *Soviet Naval Developments: Capability and Context*, Praeger, 1973).

¹¹ Leon Gouré's succinct summary (to this author, on Feb. 17, 1975) of Admiral V. D. Yakovlev's presentation in *Sovetskii Flot*, (the Soviet Navy), DOSAAF, Moscow, 1969.

of Aeroflot capacities being utilized at the time of the 1968 Czechoslovak intervention, so there was no question of available merchant fleet units being used to supplement naval capacities at the time of the 1962 Cuban crisis, or i.e. the 1973 Mideast War; and there have been numerous analogous examples of fishing and research vessels being diverted, to "cover" major NATO exercises, or i.e. to "cover" U.S. Naval activities around Diego Garcia, in the Indian Ocean.

The dual-purpose intent of the civilian fleets does cause some headaches from the point of view of Naval planners. The fact that they are not automatically divertible without recourse to higher authority, without due cause, does place constraints on their special purpose potential. The fact that their military tasks have to be standardized, or routinized to the maximum possible extent, inevitably entails an element of restraint. Nevertheless, this can be lived with, as a small price to pay for valued services.

The pattern of effective coordination is already well-established in the northern seas. While it is still undergoing regularized measured expansion in southern oceans, the pattern i.e. in the North Atlantic appears to be relatively set. In the North Atlantic there is already "blanket" coverage, and it is probable that any further expansion in this area will be such as to reflect qualitative rather than quantitative advances.

There may however be developments of note at two extremes of the North Atlantic. To the east the kind of direct political fleet manipulation witnessed at the time of the British-Icelandic cod war and during the Portuguese sardine fishermen's strike, may prove forerunners of future patterns.

To the west or rather northwest of the Atlantic Soviet activity may grow as a result of increasing appreciation of ocean floor resource potentials. There is a real "danger" (to Canada) that Soviet activity in the northwestern Atlantic and off Labrador will "meet" Soviet Arctic Ocean and ocean bed research and development teams in the Canadian Arctic. If one projects from present capabilities, and stated interests and concerns, then it is far from farfetched to talk of a not-too-distant Soviet ability to mine Canadian Arctic Ocean floor areas. One might reasonably doubt whether the U.S.S.R. would pioneer such activities in these areas. But in the present situation of increasing American interest in their riches, coupled with a startlingly desultory Canadian enforcement of her sovereignty claims, the U.S.S.R. may not have to engage in chancy, and perhaps provocative pioneering; she may be in a position to pursue the international law implications of U.S. initiatives.

INTRODUCTION

The focus of this study will be on the "civilian" fleets of the Soviet Union: the merchant marine; the fishing fleet; the research oceanographic fleet(s). Each of the fleets were procured and developed as a result of military as well as economic considerations; each is entrusted with military as well as civilian tasks.

The study will pursue the military import of these fleets, and investigate the interrelationship of their civilian and military requirements. It will address itself to the question of relative benefit, relative return on investment. It will attempt to clarify the civilian economic

import of the fleets, in order to determine the extent to which their emergence might be ascribed to economic criteria alone, or whether the explanation must be sought to a greater or lesser extent in strategic imperatives (i.e., the question of the opportunity cost of their military functions).

Before delving into this, however, some attention should be paid to the subject of military-civilian integration in the U.S.S.R. in general. One cannot comment on the case of the civilian fleets in isolation. Their character is a direct reflection of more embracing societal concepts and practice. An appreciation of the determining parameters is an essential prerequisite to their evaluation.

It is also important here to comment on the terminology of the title: "Notes" has been employed deliberately to suggest the necessarily tentative nature of the endeavor. As will be seen from the text, there are considerable gaps in the data available to the Western analyst; furthermore, some of the data that is available has not been accessible for the purposes of this study. The study should therefore not be viewed as definitive. At most, it may be seen as a pioneering, thought-provoking, collation of some of the relevant data. It is hoped that the study may serve to stimulate followup efforts of greater scope, with the resources to pursue the many tangential lines of research that this study must rest content merely to indicate.

THE SOVIET CONCEPT OF STRATEGY

Moscow sees strategy as transcending its military component. She defines strategy to reflect the sum total of a nation's power levers. Other levers of essence are to be found in economic might and potential, in morale, in cultural and social cohesiveness, etc. Each is but a tool, albeit a necessary, and dependent tool. Circumstances of time dictate which are to be emphasized, but none can be ignored. They are interrelated, intertwined and interdependent.¹²

Soviet leaders have not hesitated to pursue the practical consequences of their theoretical bias.

ECONOMIC AND SOCIETAL CONSEQUENCES

The military-economy sphere is illustrative. The recognition of military strategy's increasing dependence on the technical and economic conditions of the protagonists had profound consequences. It brought acceptance of the tenet that "military economists" be added to higher military staffs, as well as to the planning and economic organs of the state administration. The parochial pursuit of purely military, or purely economic objectives would not suffice. One had to coordinate the peacetime economy with potential military requirements.¹³ Domestically, this entailed a strong stress on basic self-sufficiency, autarchy. And it entailed a readiness to sacrifice economic optimality on the altar of strategic necessity. Military dispersal and survivability

¹² See i.e., N. N. Azovtsev, *V. I. Lenin i Sovetskaya Voennaya Nauka*, (V. I. Lenin and Soviet Military Science), Voenizdat Moscow 1971; I. Kh. Bagramian, *Istoria voyn i voennovo iskusstva* (History, Soldiers and the Art of War), voenizdat Moscow, 1970; and other Soviet sources, listed in C. G. Jacobsen, *Soviet Strategy—Soviet Foreign Policy*, 2nd ed., MacLehose, Glasgow, 1974.

¹³ A. Lagovsky, *Strategy and Economy, a Sketch of Their Mutual Interconnection and Influence*, Voenizdat, Moscow 1957 (translated by U.S. Department of Commerce); or see i.e., A. A. Grechko, *Na Strazhe Mira i Stroitelstva Kommunisma* (On Guarding the World and the Building of Communism), Voenizdat, Moscow 1971.

requirements had to be considered at the earliest stages of planning. Contingency planning demanded a geographical scattering of some activities, the underground duplication of others. And it demanded the highest possible degree of standardization and interchangeability.

Civilian products, such as air, sea and land passenger vehicles, are wherever possible dual-purpose, configured so as to meet wartime as well as peacetime needs.¹⁴ Conversely, military productive capacity is designed also to complement and strengthen the civilian sector (successfully and extensively in areas such as construction, perhaps less so in areas permeated by security considerations. Therefore, Brezhnev's acknowledgement that 42 percent of the defense industry's output is used for civilian purposes¹⁵ reflects not only on the privileged position of defence in the recruitment of scientific personnel, and the productive capacity of defense industries; it reflects also on the state of military-civilian integration.

Externally, Moscow's appreciation of economic requisites led first to a focus on the West's reliance on overseas suppliers for a variety of crucial products, and then later to keen military interest in the economic potential of the oceans, and the ocean floor. The former focus stimulated naval interest in the problems and potentials of interdiction, in sea-denial as opposed to sea-control. The latter stimulated extensive and well-coordinated military-civilian research efforts, leading ultimately to the pursuit of at least some sea-control capabilities.

The military-societal morale sphere is equally illustrative. The requirements of morale and discipline undergo constant public scrutiny, as evidenced by a plethora of literature (ranging from children's books extolling military tradition and glory,¹⁶ to sophisticated treatises for the expert audience).¹⁷ Extensive "military-patriotic" educational campaigns bolster military service status and pride.¹⁸ Well-publicized extra-financial prerequisites ease officer recruitment and retention, while considerable improvements also ease the lot of enlisted men (quarters for naval personnel, for example, compare favorably with U.S. W.W. II standards). Whether or not U.S. reports of a floating bordello attached to Soviet Naval facilities in Somalia¹⁹ are accurate, there is no doubt that the callousness of old, finds little scope in the personnel policies of today's Soviet military establishment.

Yet the carefully-nurtured prestige of the military has wider ramifications. It has led to general acceptance of paramilitary training of the civilian populace at large. The preinductive programs, at factories, schools and other institutions, have cut inservice training requirements (and thus tended to offset a shorter period of conscription). Postservice programs have focused on acquaintance with the implications

¹⁴ The Utilization of Aeroflot facilities during the 1968 Czech intervention provided a prime example.

¹⁵ In his "Report to the Central Committee," the 24 CPSU Congress, p. 77 of Novosti edition, Moscow, 1971.

¹⁶ Such as S. Barusdin's "Shiol Po Ulitse Soldat" (Soldier Walking Down the Street) Izdat. Det-skaya literatura, Moscow 1971—with a first edition of 600,000 copies.

¹⁷ I.e. M. P. Korobeinikov's "Sovremenni Boi i Problemi Psikologi" (Contemporary Struggle and Psychological Problems).

¹⁸ See treatment in C. G. Jacobsen, op. cit.; also i.e. W. F. Scott's "Survival in the Nuclear Age, an Examination of a Soviet Concept," Ph. D., November 1973, George Washington University.

¹⁹ Reported at Dalhousie University's 1974 Maritime Seminar.

and demands of modern war, conventional, chemical-biological, and/or nuclear, to minimize panic, and to maximize resistance and survival prospects.²⁰

And the consequences go further still, as is well-appreciated by policymaking bodies. It is generally acknowledged that the high-prestige military, acts as a unifying force on a diverse federation, complementing the Party's striving for an all-Union "Soviet" consciousness—a Soviet rather than (ethnic) Republican sense of identity. It may be less widely recognized that positively received paramilitary training of civilians also serves to augment discipline in general—a side-effect of no little political and economic benefit. Nor should one dismiss the potential of the military-patriotic glorification of self-sacrifice. (While skepticism may be rampant in some sectors of the populace, idealism is not dead; voluntary work campaigns by Komsomol and similar groups remain consequential, for harvesting, as for the development of Siberian wilderness.)

Again, there is an external consideration. Most navies are aware of the goodwill potential, when visiting foreign ports, of demonstrable morale and discipline. Yet this awareness is rarely a matter of high policy priority, as it is for the Soviet Navy. The crucial nature of political perception, as distinct from, if not necessarily divorced from reality, receives constant attention at the highest levels of Soviet policymaking and it finds constant resonance and scrutiny in the nation's media. The 1970 pioneering, worldwide Soviet Naval exercise *Okean* is illustrative; post-maneuver visits to friendly and neutral ports received as extensive press coverage as did the maneuver itself.²¹ Soviet servicemen are ambassadors. Impeccable standards are demanded. Transgression is a very serious matter indeed, and punished accordingly.

RAMIFICATIONS FOR POLICY-AFFECTING ORGANS

"Politics is the guiding force, and war (cum economic, social or other policies) is only the tool."²² Policy is set by the Party-dominated establishment, into which the upper echelons of the military have been absorbed. The military does not constitute an independent, or even self-contained wielder of power. There are functional interests within the Forces, as between rocket troopers, tank and artillery men, between submariners and surface fleet personnel, between administrators, technicians and journeymen, between Arms, and between geopolitical circumstances (a Far Eastern posting will have different ramifications from a GDR posting). But there is no catholic all-Armed Forces interest of jeopardy to Party concern. Rather, Armed Forces aspirations complement those of the Party, and are therefore generally seen to be best served through the Party.

There is establishment consensus as to ends. There is less consensus as to means, but again the Armed Forces could not be portrayed as pitted against the Party. Upper military echelons are not homogeneous. Some are more conservative, some are more flexible, some are more willing to accept certain kinds of risks, etc. Again, each grouping

²⁰ Scott, *op. cit.*

²¹ "Okean", Voenizdat, Moscow, 1970.

²² V. I. Lenin, "Leninskii Sbornik," (Lenin's Collection). XII, Moscow, 1931, p. 34.

finds it advantageous to submerge itself, in an intra-Party led coalition of like-minded, if functionally distinct, groups. Military hard-liners gain authority through their roles within the more orthodox Party faction(s); so also with pragmatists, moderates, and other elements.

As an example, one might point to the many hard-line, though far from unsophisticated, articles by Colonels Bondarenko and Rybkin. Again and again these have been labelled "anti-Party" by Western editorial writers—in apparent blissful ignorance of the Colonels' status as Party-appointed instructors at the Lenin Military-Political Academy, and seemingly oblivious of the small print accompanying the articles (which, in the case of the most uncompromising articles, noted that they formed part of a special Party lecture series.) Or one might point to General Millshtein, of the Institute for the United States and Canada. His diplomatic reasonableness in arms control discussions with American negotiators and specialists reflects the views, interests, and tasks of that part of the Party-dominated hierarchy with which he is associated. Thus a further caution is called for: Apparent discrepancies between articles or speeches usually reflect different journal/audience composition or interest, or particular domestic or international circumstances. Censorship exists.

Most public initiatives, especially in sensitive spheres, are commissioned or encouraged (even Brezhnev has ghost-writers; even he must defer to a collective—the Politburo). The often vituperative "dogmatist" Shelest is reported to have made the most accommodating speech to Czech leaders at Cierna Nad Tisou, in 1968; the "hard-line" Suslov has at times radiated moderation; the "moderate" Kosygin has on occasion sounded like his early mentors.²³ Labels are all-too-often misleading. A dogmatic approach to one issue can as often as not be contrasted with flexible approaches to other issues.

Different attitudes, inclinations, preferences do of course exist. But they are seldom what they appear to be; superficial inferences must be abhorred—rarely indeed do they stand the test of time. And as concerns sometime hidden divergences, they are clearly such as can most often be submerged within the more general complementarity of interests. There is a basic compatibility of larger aims (at the top); a mutual familiarity with particular concerns (most current Party leaders served on local Military Councils, or similar bodies at one time or another; junior officers coordinate activities also with Party representatives); a practice of accommodation springing from analogous concerns (as on the lower-level councils); etc. Thus Grechko's elevation to the Politburo reflected less increased military power, more the Party's concern for a more symbolic representativeness, and a return to the traditions of old; his influence will not reflect on military professionalism (for that, Chief of the General Staff Kulikov would have been better suited), it will reflect rather on his association with the Great Russian/Conservative Nationalist grouping at the establishment apex—and on his long-term rapport with Brezhnev and other Party leaders.

SOVIET THEORY ON THE ROLE AND PLACE OF THE MILITARY

This may serve as an appropriate summation.

²³C. G. Jacobsen, "Soviet Decision-Making During and Following the Czechoslovak Crisis," N.U.P.I. Orientering, Oslo, 1969, and "Soviet Strategy . . .," op. cit.

Military Science is defined as a "unified system of knowledge about the preparation and waging of armed struggle."²⁴ It "is the subject of great Party concern."²⁵ "Its basis is Marxism-Leninism, and its most important cognitive method is materialist dialectics."²⁶ "Its main task has been and remains its elaboration of questions relating to insuring constant high combat readiness—the socio-political and economic level of developed socialist society creates—the conditions for resolving this central task."²⁷ The Party demands that military-scientific cadres "intensify and deepen their work in military theory, be bold in their ideas and undertakings, and improve the methods for solving problems."²⁸ Military science develops "the theory and practice of military art in every way," utilizes "the achievements of scientific and technical progress," improves existing and searches for new "managerial and personnel-training methods and forms."²⁹ It cannot "decline to analyse new phenomena," as it must look to the future, and consider all possibilities and hypotheses."³⁰ Challenges are welcome. It is obliged to "constantly seek new ways."³¹

Military doctrine, however, "is based on the conclusions of Soviet military science—(and) is a synthesis of (its) knowledge."³² Military doctrine is the specific "unified guiding view accepted by the Soviet state concerning the fundamental problem of preparing the country and the entire people."³³ It incorporates those aspects of military science that are appropriate to the contemporary period, and is therefore inherently correct and nonflexible. Any challenge to it would hence cause "a serious fissure in the entire military structure."³⁴ It would be unthinkable.

Military strategy evolves from, and is dependent on, doctrine. It is that part of military art which is relevant to the situation of the day. It "proceeds from" the general tenets of doctrine. It "develops and studies concrete problems bearing on the nature of war." It analyzes "the conditions and factors that determine, at any given historical moment, the nature of a future war, the distribution of military and political forces, the quality and quantity of weapons, the military and economic potential, the probable composition and strength of the opposing coalitions and their geographical distributions. It develops the means for a war's conduct."³⁵

But there are also other aspects to doctrine. The economy "exerts a determining influence—the country's economic might is the most important basis of its defense capability." ". . . the consistent and specific implementation of the economic and social policy formulated by the—CPSU" is of paramount importance.³⁶ And not only are

²⁴ Sidelnikov, *Krasnaya Zvezda*, May 11, 1962.

²⁵ A. A. Grechko, *Voprosi Istorii KPSS*, (Questions of History of the CPSU), Moscow, May 1974.

²⁶ *Ibid.*

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ *Ibid.*

³⁰ Kozlov, *Kommunist Vooruzhennikh Sil*, (Communist of the Armed Forces), Moscow, No. 5, 1964.

³¹ Grechko, *Voprosi Istorii KPSS*, op. cit.

³² Sidelnikov, op. cit.

³³ *Ibid.*

³⁴ Kozlov, op. cit.

³⁵ V. D. Sokolovsky, *Voennaya Strategia*, (revised English ed., "Military Strategy," Praeger, 1963).

³⁶ Grechko, *Voprosi Istorii KPSS*, op. cit.

economic considerations relevant, even crucial, so also are "people, who handle the means of struggle. The Party therefore pays unremitting attention to the ideological and moral-psychological training and to the combat skill of Soviet soldiers. The improvements in armaments—is inseparably linked with the constant ideological growth of Soviet soldiers, and the raising of their moral-psychological qualities and military expertise".³⁷

The Party has absolute authority as the sole definer of military doctrine, or dogma, at any one time. The military leadership's authority is absolutely limited as within the frame of the definitions. It must "proceed from" doctrine, and can develop and study only "concrete problems." It can put the theory into practice, and it can develop the theory's implications, but it cannot alter the theory. It can control and manipulate the material and tasks accorded to it by the theory, except for "modern weapons," which are in a special category: They "are such that the political leadership cannot let them escape its control."³⁸ That is to say, they and their potential use have political implications which inherently categorize them as falling within military doctrine.

The military will have some voice in the formulation of doctrine, through their roles within the Party, and through their research into "military art" and "science"—upon the conclusions of which doctrine rests. But as concerns that research, it must be noted that its pursuit is closely coordinated by the Party. In fact, not only is there Party representation on the relevant research bodies within the armed forces structure, there are also independent, parallel, "controlling" nonmilitary research bodies under the direct supervision of the Party Secretariat (such as Academy of Sciences Institutes—IUSA and IMEMO in particular).³⁹

THE ORGANIZATIONAL ASPECTS OF THE SOVIET "CIVILIAN" FLEET

Soviet "civilian fleets" provide a good example of Soviet strategy in practice. The explicit, conscious and comprehensive intertwining and coordination of civilian and military tasks and concerns has reaped definitive quantitative (financial) and qualitative fruit.

Shipbuilding, radio and electronics and other defense-related ministries are closely supervised by the Military-Industrial Commission, which is itself accountable both to the Council of Ministers and (through the Ministry of Defense) to the strategic high command. There are military representatives on planning and executive bodies; where necessary for security reasons there are purely military sub-departments/sections/enterprises (the exclusion of the state civilian sector does of course not entail the exclusion of the Party—viz previous comments re Party-military integration. There are military-Party committees at all levels, on research teams as on PT boats).⁴⁰

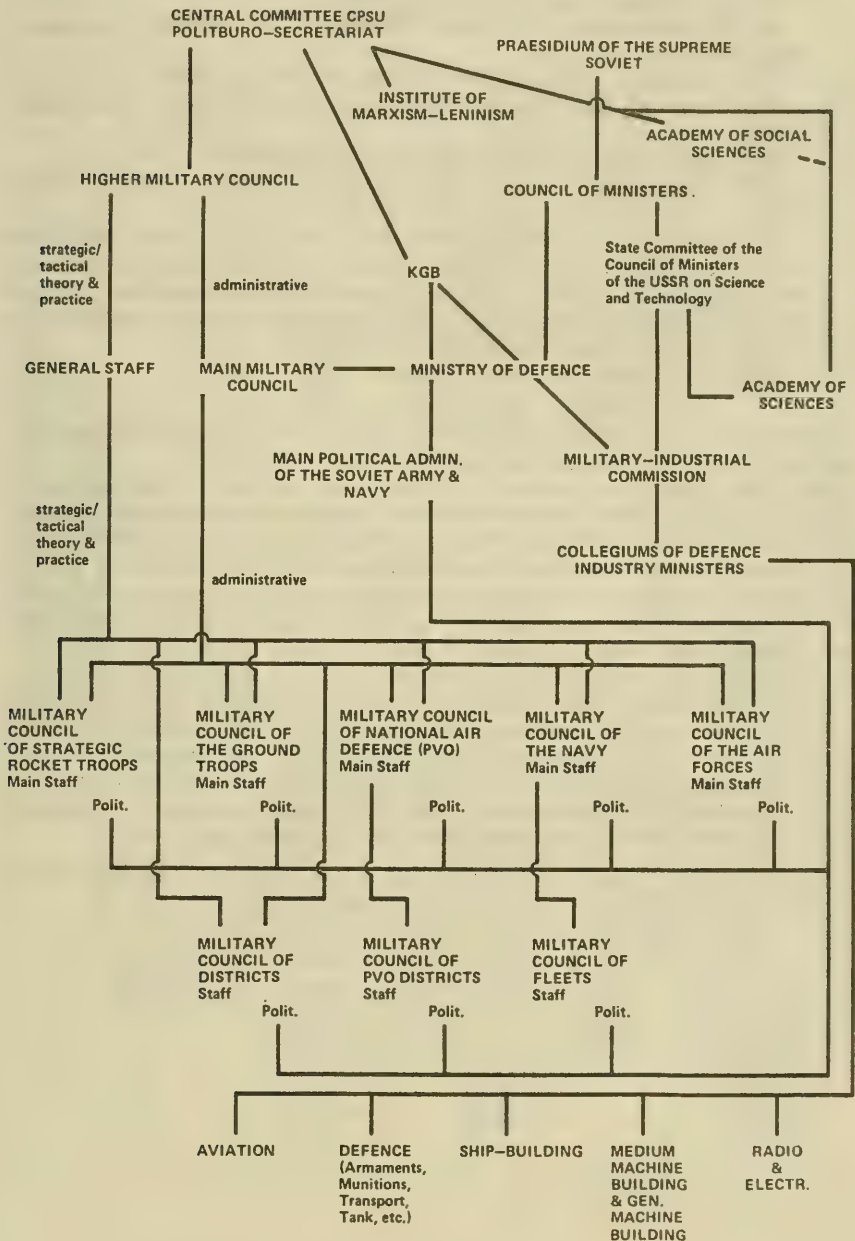
³⁷ Ibid.

³⁸ *Krasnaya Zvezda*, January 5, 1967; see also e.g. *Krasnaya Zvezda*, January 15, 1970.

³⁹ See attached charts.

⁴⁰ See charts.

DEFENCE RELATED DECISION MAKING BODIES — USSR



Conjectured lines of authority, based on a collation of data from the following sources:

(1)⁴¹ Yu. P. Petrov, *Construction of Political Organs*, Voenizdat, 1968.

Officers' Handbook, Voenizdat, 1971

V. D. Sokolovsky, "Military Strategy," 3d edition, Voenizdat, 1968

S. S. Lototsky, *Army of the Soviets*, Politizdat, 1969

50 Years of the Armed Forces of the U.S.S.R., Voenizdat, 1968

50 Years of the Soviet Armed Forces, Voenizdat, 1967

Oleg Penkovsky, *Penkovsky Papers*, Doubleday, New York, 1965

(2) Charts presented to Dalhousie University's 1974 Maritime Seminar, prepared by John McDonnell of Dalhousie University, and James McConnell, of the Center for Naval Analyses, Arlington, Va. (To be published, with other conference papers, by Praeger Publishers, New York.)

(3) This author's personal sources.

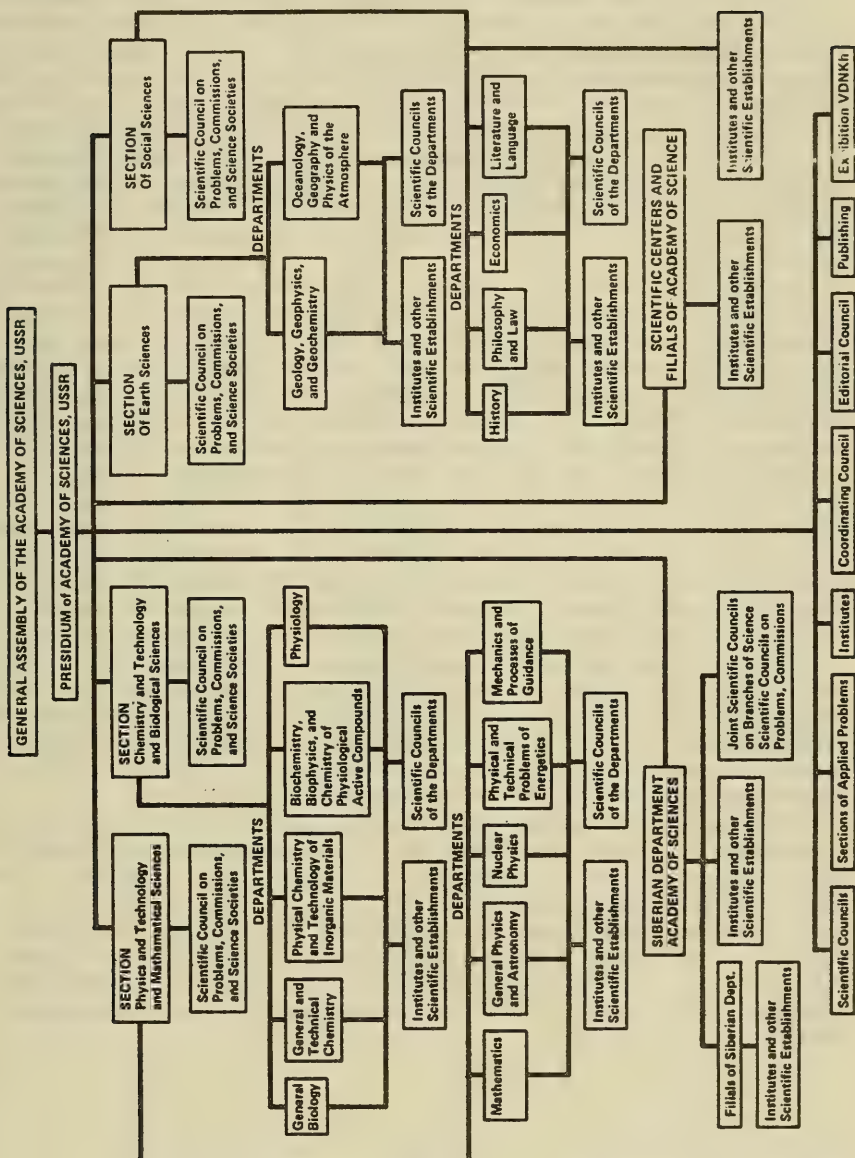
Caution: (a) The chart necessarily reflects an element of conjecture, and should not be regarded as definitive, or exclusive.

(b) The constricted nature of the space available has produced some anomalies. Thus the fact that the Institute of Marxism-Leninism and the Academy of Social Sciences, for example, appear "above" the Council of Ministers and the Academy of Sciences does of course not reflect on relative importance; so also with the apparent location of the defense industries, "below" i.e. PVO District Military Councils. One should note only the lines of authority, the delineation of which has been the sole object of this exercise.

(c) As indicated, the chart makes no pretense to be exhaustive; it delineates only those lines of major concern to strategic decision-making. Thus there are obviously lines to be drawn between the KGB, for example, and most of the other bodies, be they military or i.e. Academy Sciences related. But while such lines might be crucial to other investigative endeavors, they are not so to ours.

⁴¹See H. Fast Scott's "Conjectured Leadership of the U.S.S.R." (1974), S.R.I., for chart based on the sources here enumerated.

THE ACADEMY OF SCIENCES OF THE USSR



Source: Bol. Sov. Encyclopedia, 3rd Ed, 1971.

As indicated on the chart, this is taken from the "Great Soviet Encyclopedia" (Bolshaya Sovetskaya Encyclopedia), 3d Ed., Moscow 1971.

This chart is included for general reference purposes.

The Academy of Sciences is the nerve center of Soviet research. It should be confused neither with the Academy of Social Sciences (which might perhaps best be described as a high prestige higher business school); nor with institutions such as the Academy of Pedagogical Sciences, the Academy of Medical Sciences, etc. (these are lower-level academies of more narrow functional responsibilities); nor, finally, with the research bodies attached to individual ministries, or i.e. the general staff (these may coordinate some of their work with that of particular academy-associated facilities, but such coordination is usually limited, and is not indicative of organizational interdependence).

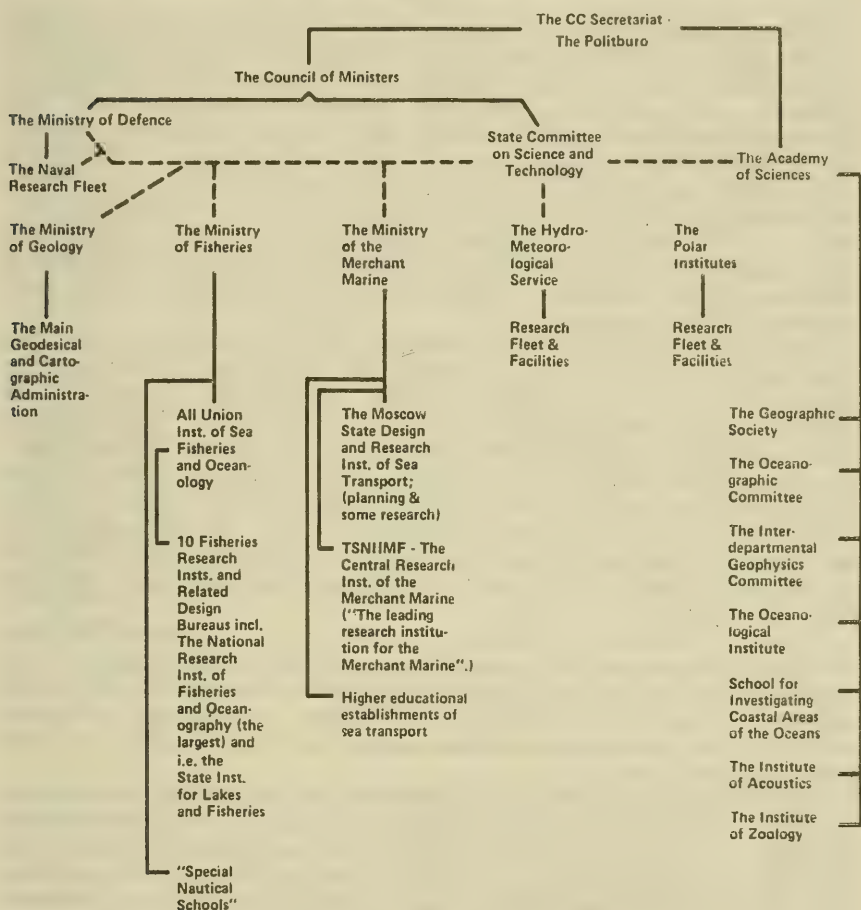
The august Academy of Sciences has about 500 full members, Academicians, a number of whom have seats also on the Party Central Committee or on Central Committee related organs, with some enjoying intimate contact with the apex of the Party's policymaking hierarchy ("no accident," as the Russians are fond of noting). With reference to Chart I, it should be noted that the Academy is by no means subordinate to the State Committee on Science and Technology. Rather; the latter performs a coordinating function.

Academy of Sciences Institutes (only a few members of which lay claim to the ultimate accolade—the title of Academician) cover the spectrum of research concerns, ranging from investigations of Latin-American socio-political fabrics, through oceanography and geophysics, to laser fusion. Although preeminently civilian in character, and in most of its aspirations, the Academy has always been responsible for a certain amount of security-related work. Most of the Institute's charters allow for security-oriented personnel, facilities and tasks. They reflect on the previously discussed comprehensiveness of Soviet conceptions of strategy, and political and economic power; there has always been and remains tremendous stress on the necessary interdependence of civilian and defense-related endeavors.

Some Academy facilities have always seen close ongoing Central Committee supervision and direction. As an adjunct of that relationship, many have also established more direct ties to some of the defense establishments proper.

For further information see: "Analyses of Various Research Institutes," The Stanford Research Institute's Strategic Studies Center, Arlington, Va., 1975 (Commissioned by the U.S. Government: Contract No. DAHC15-73-C-0380; this author participated in its compilation.)

CIVILIAN RESEARCH AND DEVELOPMENT OF OCEAN WATERS AND BEDS — THE DOMINANT INSTITUTIONS



The sources here used represent a cross section of Soviet press comments and news releases. See the footnotes attached to the following survey, of the most important research and developmental facilities at the disposal of Soviet merchant, fishing and oceanographic fleets. And see other sources as noted in the main text.

The pro forma apex lies in the State Committee for Science and Technology. It formally coordinates the efforts of other institutions in the field—"the U.S.S.R. Academy of Sciences, the Ministry of Fisheries, the Ministry of the Merchant Marine and the Hydrometeorological Service, all (of which) have central research institutes and affiliated departments in the various basins."⁴² In reality the Academy of Sciences appears to shoulder the burden of scientific responsibilities. The State Committee for Science and Technology appears to act mainly as a conduit between the research organs and state organs responsible for the practical implementation of theoretical advances: it is primarily "concerned with problems of economic development of resources".⁴³

Academy of Sciences organs central to this investigation are: the Geographic Society of the Academy; the Academy's Oceanographic Committee, and its Interdepartmental Geophysics Committee; its Oceanological Institute (which operates some of the finer research vessels, such as the Admiral Kurchatov); and its School for Investigating the Coastal Areas of the Oceans. The Academy's concerns are far-ranging: during the late sixties scientists at its Kievan branch "developed a new and unusual installation for the extracting from sea water of boron, manganese and other so-called trace elements needed for plant life. Introduction of these elements into the soil considerably raises crop yields."⁴⁴

Academy facilities are made available to the All-Union Institute of Sea Fisheries and Oceanography, the State Project-Design and Research Institute of Sea Transport, the Main Geo-desical and Cartographic Administration of the U.S.S.R. Ministry of Geology, and other lesser but yet relevant institutions (such as the State Institute of Lake and River Fisheries).

The All-Union Institute of Sea Fisheries and Oceanology coordinates the activities of ten fisheries research institutes, and related design bureaus. The ten research institutes each possess peculiar experimental facilities, and operate their own special research fleets. Their activities span all the important fishery basins. The largest of the Institutes is the National Research Institute of Fisheries and Oceanography in Moscow. The intensive research efforts have been complemented by efforts to insure that lower echelons meet the educational demands of modern fishery technology: of the 700,000 plus employed by the fishing fleets by the end of the sixties, 75 percent were under 30 years of age; 80,000 were "specialists with college and specialized secondary education;" there are a number of "special nautical schools", through which new recruits must pass.⁴⁵

⁴² Pravda, May 11, 1969.

⁴³ Ibid.

⁴⁴ Pavlov, *op. cit.*

⁴⁵ Lobanov, *op. cit.*

As regards the merchant marine, the Moscow State Project-Design and Research Institute of Sea Transport, SOYUSMORNIIPROEKT (with branches in Odessa, Leningrad, and Vladivostok) is responsible for the "complex planning of seaports, shipbuilding yards and coastal structures in sea transport," and also conducts some research—especially on hydroengineering construction.⁴⁶ The "leading research institution for the merchant marine," however, is the Leningrad-based Central Research Institute of the merchant marine, TSNIIMF, which "deals with problems related to the choice of the most perfect types of ships,⁴⁷ to the organization of ship maintenance, and to improvement of labor organization and working conditions for seamen." "Scientific studies are now obligatory before taking any decision on technical or organizational matters."⁴⁸ And again, the higher technology content of the industry places higher demands on its personnel: there are Higher Educational Establishment(s) of Sea Transport in Odessa, Leningrad, and Vladivostok.⁴⁹

Practical intra- and inter departmental coordination is oiled by the Automatic Control System, ACS, the kernel of which has been described as "the sophisticated computing centers of the Baltic, Black Sea, Novoroslisk, Severny, and Far Eastern shipping agencies, and the Merchant Marine Ministry's Chief Computing Centre in Moscow." "The ACS ensures day-to-day control for merchant marine dislocation and shipping process, as well as optimal planning and adequate supervision over the performance of ships and seaports" (in general)—including the coordination of sea-rail container services (such as that now established between European ports, Leningrad-Nakhodka, and the ports of Japan).⁵⁰

Each of the "Mother Institutions" here indicated has its own publishing facilities, responsible for books as well as journals and monographs.

THE STRATEGIC RELEVANCE: ROLES AND MISSIONS OF THE "CIVILIAN" FLEETS

THE MERCHANT MARINE

The merchant marine serves at least four strategic purposes. It obviates dependence on foreign hulls for trade purposes,⁵¹ allowing for self-sufficiency in export-import trade capability. It means that cargo does not have to be submitted to foreign scrutiny, a consideration of political, but even more of strategic importance. Carefully designed-in dual-purpose capability entails considerable potential for the relatively unobtrusive movement of noncivilian cargo, whether men, missiles, or Kalashnikovs.⁵² The administrative integration under which it operates furthermore allows it to act as the regular provider of a wide variety of supplies for naval units proper (ranging from oil to toilet paper). The smaller formal naval size, occasioned by

⁴⁶ A. Kolesnichenko, "USSR Merchant Marine: Latest Developments", *Novosti* Release 102EX20910/K; and Guzhenko, *op. cit.*

⁴⁷ It is illustrative of changing times that whereas in past decades Soviet ship design (civilian and military) illicitly nothing but disdain in the West,—today the U.S. Navy has a program to imitate Soviet ship designs; see *i.e.* "Aerospace Daily", July 3, 1974.

⁴⁸ Kolesnichenko, *op. cit.*

⁴⁹ For useful general surveys, see *Morskoi Flot SSSR za 50 Let*, (The navy in the U.S.S.R. over 50 years.) *Novosti* Press, Moscow 1974, or *The Soviet Merchant Marine*, *Novosti*, 1974.

⁵⁰ *Ibid.*

⁵¹ The grain purchases of the early 60's, for example, were transported in foreign hulls.

⁵² As demonstrated during the 1962 Cuban "missile crisis".

the ability to dispense with the need for an auxiliary naval supply fleet of consequence, can be politically useful.

Finally, as in the case of the navy proper, there is the somewhat intangible but heavily stressed political fallout from demonstrations of efficiency and goodwill while in foreign ports.

The centralized coordination of merchant fleets' cargoes and movements (streamlined in 1971, with the introduction of a new "electronic computing center for the automatic control over the location of the seagoing fleet of the U.S.S.R.—in Moscow"⁵³), entails a degree of optimization of costs and tasks such as to cause considerable envy in the hearts of most Western strategists.

Such reaction is further justified when account is taken of the fact that the same automated system controls also port and repair facilities' construction and operation. One illustrative fallout from this comprehensive coordination may be found, i.e., in the development of dual-purpose floating dock facilities. For the navy these have provided a costly but politically useful alternative to total dependence on foreign bases;⁵⁴ for the rapidly expanding civilian fleets, they have alleviated the problems of congested shore facilities—thus allowing the expansion of the latter to proceed at a more measured pace.⁵⁵

THE FISHING AND OCEANOGRAPHIC RESEARCH FLEETS

The Fishing and Oceanographic Research Fleets provide analogous examples. Their research facilities, equipment and tasks are guided and monitored by the Military-Industrial Commission.⁵⁶ Their sonar, electronic and other scientific equipment, essential for the efficient harvesting of ocean resources and the geological prospecting of ocean floor potentials, is equally vital in chartering Western fleet movements, submarine as well as surface and in monitoring more static Western naval defense arrangements.⁵⁷ Thus the "civilian" scientific means at the disposal of the Soviet Union clearly plays an inestimable, central role in efforts to monitor and penetrate systems such as SOSUS.

(A principal U.S. strategic warning system, SOSUS is an extensive underwater sonar array system, linked to P-3 and other surface/air ASW vehicles. It covers the oceanic approach to the United States on both coasts, can localize within a circular area of 50 n.m. radius, and can resolve two submarines even when very close together. It can with high confidence give information

⁵³ "U.S.S.R. 1973," APN Handbook, pg. 217.

⁵⁴ Though it must be added that a global navy will still need at least some access to foreign facilities; see i.e., U.S. Naval Inst. Proceedings, March 1967.

⁵⁵ The Soviet Merchant Marine, Novosti, 1964, pg. 20.

⁵⁶ See Charts.

⁵⁷ Raoust, *Revue de Defence National*, Paris, April 1969 ("—sonars utilized for the detection of fish may also no doubt be utilized to detect larger objects. It is not implausible to infer that Moscow knows the deployment of American Polaris submarines nearly as accurately as Washington."); NATO, *Facts and Figures*, pg. 80, Bruxelles, 1969, and *Defence Policy*, pg. 24, NATO Info. Service, 1969 ("—they carry comprehensive monitoring equipment and highly sophisticated electronic gear—"); —see also *Krasnaya Zvezda*, July 27, 1969 ("—an important role in the securing of bases and combat operations is exercised by aid vessels of various size—"). NOTE also testimony in N. P. Sysoev, *Economics of the Soviet Fishing Industry* (Izdat. Pishevaya promyshlennost, Moscow, 1970), Chapter 6: the electronic equipment (radio, sonar, etc.) aboard trawlers rose four-fold between 1959 and 1967, when it came to represent 10–30 percent of any ship's total value.

as to the general location of every submarine in the North Atlantic. Yet, there remain command and control deficiencies. A submarine can still "hide" in shallow waters, at speeds under 10 kt. And the task of finally localizing the submarine, on the part of mobile systems dispatched to the area identified by SOSUS, remains very considerable. Finally, there are of course obvious time problems—in the context e.g., of first/second strike scenarios.)⁵⁸

Public Soviet discussions of the military role of the civilian fleets tend to be models of discretion. References tend to be both cursory and obtuse. This is especially true as concerns the intelligence-related potential of the fishing and oceanographic fleets. A number of Soviet authors have acknowledged the aid provided by these fleets to the navy proper (for a quote along these lines by Admiral Kasatonov, see footnote 57). But specificity has been a rare commodity. Western authors have generally had to rely on extrapolations from more catholic Soviet strategic pronouncements (always against the background of known or presumed technological parameters); and as concerns those with access to classified data, on correlations of such extrapolations with data gleaned from satellite and other intelligence sources. And a careful calibration of these different considerations can indeed produce composite pictures of considerable clarity, and accuracy.

There are, fortunately, exceptions to the general dearth of specific references in Soviet strategic literature. And such exceptions do tend to corroborate deductive conclusions of the type described above. One might refer for example to Admiral Yakovlev's book on "The Soviet Navy": "Hydrographic ships are responsible for installing the required navigational equipment in a naval theatre (i.e. target location) and also for carrying out diverse other tasks—navigational-hydrographic support consists of a complex of measures aimed at equipping a theatre (of naval operation) with navigational devices for enabling aircraft and ships, as the need arises, to determine with great accuracy their precise location while at sea and located at great distances from their bases."⁵⁹ In other words, the two main tasks are: (1) Target location, directed primarily at subsurface vehicles and installations (satellites have long since become the prime conduit for surface intelligence), and utilizing both onboard equipment and deposited, anchored, devices; (2) Improving and securing command and control channels for the subsurface fleet, again through both onboard and ocean deposited equipment (and again with satellites now performing the prime surface functions, for surfaced submarines as well as for surface vessels per se).

THE "STATE-OF-THE-ART"

Thus there is little doubt about roles and functions. What uncertainty does exist relates to effectiveness, to the "state-of-the-art." The field of sonar developments is illustrative of the problem. Here, most

⁵⁸ See "Report" from Harvard University April 11, 1974 "PSIA Workshop on Anti-Submarine Warfare."

⁵⁹ V. D. Yakovlev, "Sovetskii Flot," (The Soviet Navy), DOSAAF, Moscow 1969; JPRS, No. 692, 1971, pgs. 27, 29 & 30 (with thanks to Prof. Leon Goure, who first drew this author's attention to the book in question).

observers would concur in the statement that the state of theoretical scientific knowledge on the subject in the U.S.S.R. is as advanced as that available in the West. And there is no question of continuing high priority and extensive Soviet efforts to translate theoretical knowledge into operational capability. But there remains some dispute as to the success of these efforts. Hence, there remains uncertainty as to the exact qualitative state of for example Soviet Anti-Submarine Warfare capabilities,⁶⁰ or e.g., Soviet ability to engage in schemes analogous to the recently much publicized (and only partially successful) C.I.A. attempt to localize and raise a sunken Soviet sub of dubious vintage.⁶¹

Analysts deprived of access to classified data can make no pretence to qualified judgement on these points. And neither, it seems, can those who do have access to such material (to judge from their inability to arrive at anything resembling a consensus). But it is fair to say that most commentators now tend to believe that the gap between Soviet and Western practical capabilities in these areas, if indeed a gap exists, is closing rather rapidly. And this conclusion would certainly appear to be buttressed by even the most cursory appreciation of current and projected Soviet designs for "harvesting the ocean (and ocean floor) wealth." These designs will be looked at below. Suffice it to note in this context that most of the methods and means now being employed, as well as those that are openly spoken of as being "in the pipeline," have clear "dual-purpose" potential.

OUTWARD DEPLOYMENT

In view of the acknowledged military relevance of the Soviet civilian fleets, it should occasion no surprise that there has been a startling coincidence between their quantitative buildup and everexpanding deployment patterns, and the highsea emergence of the rapidly growing Soviet Navy proper. From rudimentary activity in 1960 there emerged by 1970 what might, with dramatic flair and a certain licence, be called blanket coverage of the North Atlantic. And this has been followed (since the late 1960's) by a similarly coincidental, parallel extension of significant military/civilian activities in oceans further afield.⁶²

POLITICAL AND STRATEGIC IMPORT

One should note that the strategic import of the civilian fleets is not restricted to the primary security functions outlined above. They also have more subtle or circumspect functions such as evident i.e., in their policy stance during the last Icelandic-U.K. "cod war" or even more pointedly in their cooperation with Portuguese authorities during the Portuguese sardine fishermen's 1974 strike. Here, they quite blatantly acted as strike breakers, by providing sardines to the Portuguese canneries through the duration of the strike. Ideological

⁶⁰ See e.g., Proceedings of Dalhousie University's 1974 "Maritime Seminar" (full transcript to be published by Praeger); note participants' speculation re qualitatively different, novel, Soviet approaches to ASW problems.

⁶¹ See i.e., Times-Post story "C.I.A. Sub Salvage Rapped" and related accounts in "The Ottawa Citizen," March 20, 1975.

⁶² See i.e., Milan Kravanja's presentation to Dalhousie University's 1974 "Maritime Seminar."

criteria and proletarian solidarity concepts clearly played second fiddle to the pragmatic desire to foster good relations with Portugal's new radical (but as yet far from Marxist) regime.⁶³ There is nothing novel in the realization that Moscow is willing to let ideological considerations be superseded by pragmatic conceptions of state interests (Soviet relations with the Arab world and with Latin American abound with striking examples). But the coordinated manipulation of the civilian fleets for this purpose is rather novel. It provides graphic demonstration of the state of development of this new arm of Soviet "strategic" might (adhering here to Soviet definitions of "strategic"), and of its integration into overall Soviet policyplanning.⁶⁴

CIVILIAN FUNCTIONAL ROLES

Yet the nonmilitary aspect to this evolution must be emphasized. Moscow takes its theory seriously. The central role of economy within her strategic conception is neither accidental nor misleading.

The growth and outward thrust of the fishing fleet, its emergence from coastal activities to large scale distant "ocean harvesting," its acquisition of giant trawlers, seiners, refrigerator and factory ships, even autonomous "depot ships" (which not only carry onboard fish canning plants, but also "piggyback" their own fleet of auxiliary fishing vessels),⁶⁵ all paralleled increasing Soviet emphasis on "consumerism." Fishing products have become an increasingly important supplement to those of the still-plagued land agriculture (still relatively backwards, in spite of great financial infusions and gradual improvements over the past decade). The 1975 catch of fish "is expected to exceed 10.3 million tons."⁶⁶

PROTEIN

The seriousness and aspirations of Soviet planners in regard to the future economic role of ocean resources may be gauged from the fact that data such as the following is given extensive exposure in the media: "the seas and the oceans are inhabited by more than 150,000 species of animals. There are about a thousand million tons of fish alone. The total biological mass of the oceans has an estimated weight of 25 thousand million tons"⁶⁷—"the position of schools of fish and other denizens of the ocean is ascertained, first, by the heat regimen and the plankton"⁶⁸—"fish can be concentrated with the aid of such stimulators as light, sound, electric current, smell, and

⁶³ Ibid. As in Atlantic regions, so also in other areas. The increasing Soviet oceanographic and fisheries involvement off South East Africa and in Antarctica (especially as re the krill; see footnote 62) may have repercussions for future political developments in Southern Africa. But for the time being their political role reflects strict priority on the cultivation of more pragmatic state-to-state concerns.

⁶⁴ Ibid. Another example, analogous to but distinct from that discussed in footnote 61, may be found in the policies with which the U.S.S.R. is seeking to circumvent potentially detrimental Law of the Sea Conference decisions on territorial waters extensions. Through the provision of aid to develop indigenous fishing industries in third world countries, in return for long-term cooperative agreements, the U.S.S.R. has had considerable success in guaranteeing future access. (It must be noted that similar policies have been pursued by Japan, and—to a much lesser extent—also some Western nations.)

⁶⁵ Lobanov, "Soviet Fish Industry," *Novosti* 107E189/K, and D. Rozanov, "Fishing Vessel Vostok and Its Fourteen 'Hopes,'" *Novosti* GRSaZKANZ; Lobanov's article also discusses i.e., the Posiet, which processes 600 tons of fish daily into fish flour for animal husbandry while afloat.

⁶⁶ "U.S.S.R. 1973," *APN Handbook*, pg. 207.

⁶⁷ S. Osokin, "To the Depths of the Ocean Through Space," *Krasnaya Zvezda*, May 21, 1969.

⁶⁸ Ibid.

other physical and chemical factors—experiments show that the future of fishing belongs to artificially created concentrations of fish, which can be called stimulated fishing—it is important to study the biological bases of fish concentration—how concentration depends on the power of stimulators, the effective range of various stimulators, the procedures for setting up various fields (electric, light, etc.) of certain strength and directivity—great significance will have to be attached to selective catching—by differentially stimulating fish of various sizes and ages and by varying the selectivity of the fishing tackle—one of the pieces of new fishing equipment will be a type of floating fish pump with selectivity devices—(and) floating and stationary storm-proof catchers-collectors, set up in various parts of the seas.”⁶⁹ “—the volume of the hydrosphere depths producing biological products is at least a thousand times greater than the volume of the globe’s soil producing the green plant mass. For instance, just the annual ‘crop’ of the sea weed amounts to 500,000 million tons—.”⁷⁰ There are Arctic Ocean “astures” of mollusks and algae “half a kilogram per square meter at shallow depths.—Marine agronomists (will) cultivate plants by the year 2000.” One can envisage underwater “trolley buses” harvesting ocean-floor “pastures.”⁷¹ “The world ocean can provide food for 30,000 million people.”⁷²

And quite apart from fish, crustaceans (lobsters, crabs, and shrimps) and mollusks (clams, oysters, and scallops), there is the amazing krill, a 2½-inch long “shrimplike creature.”⁷³ The sum total world harvest of the former categories of species, currently less than 70 million metric tons annually,⁷⁴ may be contrasted to Soviet scientific estimates that the krill stock of Antarctica lies somewhere between 800 million and 5 billion metric tons. As suggested by Kyo Yui of the Japan Marine Resources Research Centre: “krill—is the biggest source of animal protein left in the world today.”⁷⁵ It is furthermore reported to have considerable medical promise.⁷⁶ And finally, its tough skin can be converted “by a simple chemical process into chitosan, for which about a thousand industrial uses exist—(i.e.) to accelerate the healing of wounds, as a baby food component, or in the manufacture of paper.”⁷⁷

While krill appears to travel in huge schools, each containing between 5,000 and 100,000 tons of krill, with a density of up to 30 pounds per cubic meter (10-12 tons of krill an hour have been caught by Soviet and Japanese vessels), harvesting remains problematic. Krill must be “either cooked or frozen (on board) within 2 hours or autolysis (deterioration by self digestion, caused by highly active enzymes in the krill’s organs) will set in.”⁷⁸ Locating the schools

⁶⁹ “Scientific Fish-Catching Methods in the U.S.S.R.,” A.P.N. release (not numbered).

⁷⁰ Zenkevich, op. cit.

⁷¹ A. Vinogradov, “Ocean in the Year 2000,” *Novosti* 201H4922/B (from *Vodni Transport*).

⁷² Lobanov, op. cit.

⁷³ Patti Hagan, “The Singular Krill,” *The New York Times Magazine*, March 9, 1975. The below is based on this article. For further information see e.g., Milan Kravanja, op. cit.

⁷⁴ Hagan, *Ibid.*: for corrective and elaboration, see “Letters,” *The New York Times Magazine*, April 6, 1975.

⁷⁵ In Hagan, *Ibid.*

⁷⁶ *Ibid.* For humans as re i.e., hyperacid ulcers and atherosclerosis; and animals, for improved weight increase rates and hemoglobin contents.

⁷⁷ *Ibid.*

⁷⁸ *Ibid.*

may also present problems, although both Soviets and Japanese have had some success with echo sounding equipment.

The Soviets have in fact pioneered this resource development in more ways than one. As of 1974, their catch reached 200,000 tons, with an ambitious commercial marketing program in full gear (the Japanese were a distant second, with a catch of 646 tons, and as yet no marketing; while other Western nations were only beginning to realize the potential). The Soviets were already "experimenting with methods that do away with nets and utilize filter devices and pumps which can suck the krill directly on board, plus artificial lures and automatically controlled gear that can sweep large areas of the ocean surface."⁷⁹

MINERAL

Yet, the ocean promise is not restricted to biological matter; to pursue Soviet testimony: "Each cubic mile of ocean water (the world oceans have 350 million such miles) contains in dissolved form 165 million tons of solid matter representing almost the entire table of chemical elements."⁸⁰

"—Ultrabasic rock—under the (ocean-floor) crust substance—contains concentrated ores of valuable metals, such as chromites.—Valuable ores lie—also on the (ocean-floor) surface. In many places the bed is literally covered, like cobblestones, with the so-called ferro-manganese nodules, which have a higher content not only of iron and manganese, but also nickel, cobalt, copper, molybdenum, and some other minerals—the total reserves of ferro-manganese nodules on the surface of the Pacific Ocean's bottom alone amount to more than 100,000 million tons, but they lie also deeper. To get a graphic idea—all the world's cobalt reserves on land amount to approximately a million tons, while there is more than 1,000 million tons in the nodules lying on the bottom's surface alone.—the development of ferro-manganese nodules at great ocean depths will be technically fully feasible and economically profitable."⁸¹

"—drilling to (deep) sea bottom will be of great importance."⁸² Mineral salts, bromide, magnesium, uranium, gold and platinum are contained in water and can be extracted—"automatic mining and concentration factories (will) ply the seas and oceans,—exploit underwater rocks—(and) extract offshore petroleum even from under the Arctic ice."⁸³

SCIENTIFIC AIDS

"—the establishment—of a system of artificial satellites for ocean exploration would mean an annual gain for all countries ranging into between 900 and 2,000 million dollars—a widely ramified network of oceanographic buoys (many of the processes in the ocean can be investigated only by continuous stationary observations)⁸⁴ and satel-

⁷⁹ Ibid.

⁸⁰ I. Pavlov., "Harvesting Ocean Wealth," *Novosti*, 202E14563/K.

⁸¹ Zenkevich, op. cit.

⁸² A. Monin, "Two Thirds of Our Planet," *Pravda*, May 11, 1969.

⁸³ Vinogradov, op. cit.

⁸⁴ L. Zenkevich and S. Osokin, "Oceanography Today and Tomorrow," *Vodni Transport*, May 31, 1969.

lites will require high-frequency radiometers capable of operating in conditions of outer space, more sophisticated transmitting and receiving devices, larger capacities for the recording devices carried, more sensitive sensors, the fuller processing of information aboard the satellite itself, and also the faster relaying of the information accumulated to those who need it—by 1975 most of our oceanographic observations including measurement of water temperature, currents, shore erosion, ice movement, etc., will be effected wholly by artificial satellites.”⁸⁵

Ocean floor bathymetric depth and relief charts have been drawn up (“the Soviet Chart of the Pacific Ocean caused a sensation in the scientific world”), as have “top quality and precision magnetic charts,” current, salinity, oxidation tables, and the like—.⁸⁶

CAPSULE ASSESSMENT

The aforementioned may serve to provide rationale for the astonishing growth of the Soviet civilian fleets: the merchant fleet now hovers near the 16 million tons mark, growing at the rate of one million tons a year;⁸⁷ the equally dramatic growth of the fishing fleet was documented above;⁸⁸ the oceanographic research fleet was already by 1968 numerically “greater than the combined number of ships performing analogous missions for all the other nations of the world,”⁸⁹ and its growth has continued steadily ever since.

Great efforts of men, money and technology have been and are invested. Considerable benefits have accrued. Expectations are startling (economically and perhaps also militarily).

MILITARY-CIVILIAN COST BENEFIT ANALYSIS

There are some “grey areas” however. Even if the overall return on the investments, economic as well as military, actual as well as potential, of the civilian fleets appears to be convincing, some questions nevertheless do present themselves. It is not that the military utility of these fleets is in doubt—although it must be acknowledged at the start that the worth of this contribution is inestimable (and in more ways than one: any Western attempt to assign a financial

⁸⁵ Osokin, op. cit.

⁸⁶ Krasnaya Zvezda, 25 February 1969.

⁸⁷ “U.S.S.R. 1973,” op. cit., or i.e., T. Guzhenko’s “Under the Soviet Flag,” Novosti release 206E474: New ships “include lifton, liftoff and rollon, rolloff ships able to carry 40, 200, 300 or 720 foot containers, special ships for carrying timber, minerals and other cargoes in up to 20 ton packages, large refrigerator motorships, highspeed ships for regular oceanic lines, 150,000 ton tankers (with substantially larger versions now on the drawing boards)—etc.”—Guzhenko’s survey goes on to delve into the highly significant, extensive coordination (cum integration) of Eastern European fleets with that of the U.S.S.R. He also comments on the expansion of ties with non-Socialist merchant fleet interests.

⁸⁸ Sysoev, op. cit., provides a graphic, corroborating statistic, in Table 24 of his Chapter 6: the proportion of the oceangoing fleet’s catch, of the total Soviet ocean and inland fisheries catch, rose from 1.5 in 1913, through 26.9 in 1940 and 33.8 in 1950, to 79.9 in 1960 and 90.6 in 1968; the volume represented by these percentages were 0.016 million tons in 1913, 0.375 million tons in 1940, 0.592 million tons in 1950, 2.831 million tons in 1960, 6.100 million tons in 1968.

The same source also makes a number of noteworthy assertions re profitability: the Natal’ya Kovshova class trawler (with onboard canning, freezing and fishmeal processing equipment) is for example declared to average annual ship profits of 1.5 million rubles (in 1968), with investment recoupment periods of only 3 years.

⁸⁹ Raoust, op. cit.; or, in the words of Zenkevich: “More than 100 research ships—equipped with first-class requisites—cover the entire ocean from the North Pole down to the icebound Arctic.”

value would be so dependent on hazardous and subjective extrapolations as to be highly suspect). Rather, the question that intrigues this author is whether or not the civilian economic contribution of these fleets alone suffice to make them cost-effective; whether their military contribution might in fact be seen to come gratis?

Even with such an extreme postulation, definitive answers cannot be given. There is for example no sure way of calculating the opportunity costs, to the Soviet economy, of the ships, ports, and port-related air and land infrastructure. But some comments can be made with confidence.

THE MERCHANT MARINE

First, as regards the merchant marine. Among its apparently uneconomic designs may be counted a demonstrated Soviet willingness to cut certain rates below what is considered in the West to be economically viable. The question does not concern the accepted fact of Soviet willingness at times to consider unfavorable economic returns as compensated by political or other rewards—of this there is no doubt. Rather, the question is whether there are economic considerations which allow one to avert recourse to this “fall-back” logic.

The first point to be made again relates to economies of scale. There is little doubt that the opportunity costs of maintaining a certain number of subsidized lines weighs less on a centrally coordinated fleet of the size of the Soviet merchant marine than it would on smaller independent operators. Furthermore, the direct cost of operating a Soviet ship may in fact also be less than average, in view, that is, of presumed lower salaries, and lower overall fuel costs.

The second point to be made is that Soviet “dumping” of ship rates, as also of export prices in general has never proved permanent. It has been used to break into cartels, and to ensure a piece of the cake (cum market).⁹⁰ Successful market penetrations have been followed by more commercial rates. As concerns the shipping cartels, or “Conferences,” it may well be that the receipt of capitalist commercial returns following Soviet membership more than makes up for the loss entailed by elbowing in.

The immense ocean and ocean-bed research effort is still more impervious to traditional calculations of economic benefit, since it essentially represents an investment in the future. But one might venture that the promised bounty from a “harvesting” of ocean-floor mineral nodules alone suffices to make the speculation attractive.⁹¹

THE FISHING FLEET

Perhaps the dilemma, or question is best explored through a focus on the fishing fleet. Two activities come to mind. One is the fishing of krill off Southern Africa. This must at least initially have been uneconomical, in view of the previously discussed problems of loca-

⁹⁰ The Times (of London), Jan. 21, 1969; see also i.e. Carlson, “U.S. Naval Inst. Proceedings,” May 1967, and Foreign Report, March 11, 1969.

⁹¹ For Soviet testimony, see above; for Western estimates, see the proceedings of the Caracas Law of the Sea Conference, and the position papers prepared for the followup 1975 Geneva Conference. (The now recognized potential for ocean-floor mining galvanized the efforts toward the establishing of a controlling international agency.)

tion, untested gear, and preservation (all of which appear to have been, or to be in the process of being, attended to through the procuring of more appropriate equipment; see above). The other is the late summer fishing of capelin off the Labrador coast, pursued in apparent defiance of Canadian appraisals of the cost ineffectiveness of similar Canadian ventures.⁹²

As concerns the experimental fishing of krill, this may in one sense be seen as analogous to the larger composite of research activities, as an investment in the future. In another sense, however, it parallels the case of the Labrador capelin. Although presumed unprofitable in abstract economic terms even the limited first catches may yet have been cost-effective in Soviet terms, as a highly sought additive to her protein requirements (after all, the yardstick would not be the theoretically optimal; it would be the problem-plagued agriculture). And as a less important further consideration: whatever portion could be successfully exported would also have disproportionate value, in supplementing the foreign exchange holdings of a nonconvertible currency nation.⁹³

The capelin fisheries off Labrador begins in August, when the Soviet fleet moves up from the Great Banks, and lasts through September. The mystery here relates to the fact that a Canadian experimental program from July to December, of 1972 to 1974, concluded that such fishing would be utterly uneconomical to Canadian operators. It was concluded that potential catch rates would not suffice to balance the extra costs of adverse ice and wind conditions (and while August and September are the best months in this respect, conditions remain severe).⁹⁴

The Soviet fleet also takes in "some" redfish and cod. This, and the fact that Soviet vessels have more modern onboard processing and freezing and canning equipment, may alter the equation; indeed, their announced catch rates are rather good.⁹⁵ Nevertheless, the extra costs of operating in the area, of hull-strengthenings, and so forth, still serve to cast doubt on the economics. As suggested above, it is not at all unlikely that the added premium attached to supplementary protein intakes in the Soviet context would allow one to view the Labrador capelin fishing much more favourably. But while the data available might suggest this to be the case,⁹⁶ definitive evaluations are precluded by data gaps.

CONCLUSION

In summary, it would seem that the hazarded "extreme postulation" would be highly dependent on the preferred accounting method. There is some reason to venture that the Soviet context may well make even such marginal ventures as described above cost effective; at

⁹² Information provided by L.O. Hinds, of the Exploratory Fishing Division of the (Canadian) Department of the Environment, Ottawa, April 1975.

⁹³ See P. Hagan, *op. cit.* for comments re early Soviet West European market penetration efforts.

⁹⁴ L. O. Hinds, *op. cit.*

⁹⁵ *Ibid.* As re further data of onboard canning, processing and freezing equipment, see Sysoev, *op. cit.*, Ch. 6 (thus i.e. the refrigerated ratio of total hold space increased from 8.8 in 1940, through 36.2 in 1956, to 78 in 1968).

⁹⁶ See N. P. Sysoev, *ibid.*, for a thorough presentation of the Soviet fishing fleet in general (a translation is available from the U.S. Dept. of Commerce). Note also his extensive bibliography of Soviet sources.

the very least it would seem that the relative cost of subsidies would be minimized.

And it is from the vantage point of such an appreciation that the advantages of the Soviet integration of civilian and military endeavors comes into clearest focus. The krill fisheries off South East Africa provide admirable platforms for the monitoring of vital tanker and trade routes around the Cape of Good Hope.⁹⁷ The Labrador fisheries lie astride the feasibility-testing route of the oil tanker Manhattan, the route for ocean transport of the wealth of the Canadian Arctic. Their auxiliary research facilities allow for ocean and ocean-floor research of strategic as well as economic import of an area over which effective Canadian supervision can only be described as scant.

⁹⁷ Krivanja, *op. cit.*; Milan Krivanja, of the U.S. National Marine Fisheries Service is generally acknowledged to be the foremost Western expert on the movements and activities of the soviet fishing fleet.

THE ABASHED CONSERVATIVE

THE SOVIET UNION IN THE U.N. LAW OF THE SEA DEBATE

(Mark W. Janis,¹ Harvard Law School)

Ideologically and rhetorically the Soviet spokesmen in the United Nations' law of the sea debate incline toward "the progressive development" of international law. Substantively, however, they promote the classical law of the sea, guarding the traditional system of ocean order more vigilantly than the delegations of the "conservative" powers, the United States, Great Britain, and France. Despite the dilemmas posed by the U.S.S.R.'s commitment to Marxist communism, the nature of its maritime interests forces the Soviet Union abashedly into a deeply conservative law of the sea position.

The U.S.S.R. has erected at great cost extensive systems of ocean use. The Soviet Navy, fishing fleet, merchant marine, oceanological and ocean mineral establishments put the U.S.S.R. into the front rank of maritime powers. But no other maritime power relies so greatly on access through and to the waters lying off the shores of other states. The Norwegian Sea, the Baltic and North Seas, the Mediterranean, and the Sea of Japan ring Soviet waters. Only northeastern Siberia lies directly off an ocean. Radical change in the law of the sea could drastically curtail Soviet ocean use by cutting off rights of ocean transit and exploitation. The combination of the massive investment of the U.S.S.R. in ocean activities and the poor geographical situation of the country explains why the Soviet Union has been obliged to be the staunchest defender of the old ocean order, resisting the demands of many Third World states in the law of the sea debate.

Ever since the beginning of the current U.N. sea law debate in 1967, the U.S.S.R. has been found on the side of the traditional freedoms of the high seas. The Soviet Union has opposed limits on national maritime activities either by coastal states or by an international ocean regime. This paper presents and analyzes the ocean policies of the U.S.S.R. as expressed in the debates in the United Nations' General Assembly, its ad hoc and permanent seabed committees, and at the ongoing Third Law of the Sea Conference. The paper concentrates on six areas: territorial seas, international straits, exclusive economic zones, the Continental Shelf, an international ocean authority, and the ideological overtones of the law of the sea debate.

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THE TERRITORIAL SEA

When Malta's Arvid Pardo reintroduced the law of the sea question to the United Nations in 1967, the Soviet delegation responded cautiously to his quest for a new international oceanic regime. In debate before the First Committee, the U.S.S.R. stressed that the proper course was one of only "coordination" among states and that there should be no "undue haste in the case of the preparation of international legal principles."² The year before, 1966, the Soviet Union had informally circulated a proposal for a new law of the sea conference but only to "improve" the 1958 Geneva conventions where no fixed limits had been set for either the territorial sea or the Continental Shelf. Unlike Pardo's proposal, the Soviet initiative was not aimed to make new ocean rules; rather it sought to consolidate the traditional order. The U.S.S.R. did vote in favor of creating an Ad Hoc Seabed Committee (on which it held 1 of 35 seats), but did so considerably more reluctantly than most states.³ The Ad Hoc Seabed Committee met in 1968 and the Soviet Union led the way in opposing new ocean regulations if they in any way might "prejudice the interests of states, coastal or otherwise, or endanger the freedom of navigation, fishing, and so forth, on the high seas."⁴

The work before the Ad Hoc Seabed Committee proved so complex and important that the General Assembly decided in December 1968 to create in its place a 42-member Permanent Seabed Committee. The vote was 112 favor, none against, and 7 abstaining (the U.S.S.R., Byelorussia, Ukraine, Hungary, Cuba, Equatorial Guinea, and Cambodia). The principal Soviet objection to the formation of the new committee was that there were too few Soviet-bloc seats.⁵ The U.S.S.R., however, retained its seat and throughout the Permanent Seabed Committee's meetings between 1969 and 1973 continued to insist that the "12-mile limit was in keeping with modern requirements."⁶ At the Caracas session of the Law of the Sea Conference in 1974, the Soviet Union joined with Bulgaria, East Germany, and Poland to present "Draft Articles on the Territorial Sea," where Article 2 provided:

Each State has the right to determine the breadth of its territorial sea within a maximum limit of 12 nautical miles, measured from the baselines determined in articles . . . of this Convention, and subject to the provisions of articles . . . concerning straits used for international navigation.⁷

There are no signs that the Soviet Union is forsaking its support for a maximum 12-mile limit for territorial seas.⁸

About 30 states, led by some from Latin America, now advocate territorial limits beyond 12 miles, even up to a 200-mile width. 200-mile territorial seas would encompass over 30 percent of the oceans. The Baltic, North, and Mediterranean seas would be entirely overlapped by zones of national sovereignty. Although all the maritime

² UN Doc. A/C.1/PV.1525, at 3-4 (1967).

³ 5 UN Monthly Chronicle 1, at 28-34 (1968).

⁴ A/AC.135/SR.11, at 3 (1968).

⁵ 6 UN Monthly Chronicle 1, at 56-62 (1969).

⁶ A/AC.138/SR.56, at 152 (1971).

⁷ A/CONF.62/C.2/L.26 (1974).

⁸ N. Belov, *Za Rubezhom*, Mar. 20, 1975, at 6, in FBIS: U.S.S.R., Mar. 28, 1975, at A1.

powers, including the United States, Great Britain, France, and Japan, oppose territorial seas greater than 12 miles wide, no power would be more greatly harmed by such limits than the Soviet Union. The U.S.S.R., in a world of 200-mile territorial seas, would have no immediate access to the Atlantic. Territorial seas would link the waters of Greenland, Iceland, the Faroe Islands, and Britain leaving Soviet waters behind them. Soviet waters in the Baltic and the Black Sea are already behind the Danish straits and the Dardenelles. Furthermore, the southerly routes from the Sea of Japan would also be closed. Only the northerly Siberian routes would be fully under Soviet control. This situation could limit the navigation of the Soviet Navy and merchant marine. It would surely restrict Soviet fishing and research activities. Although all the Western maritime powers would also be significantly hampered by 200-mile territorial seas, none would be so constrained as the U.S.S.R., making the Soviet Union's position vis-a-vis Western maritime strength even weaker than before.

INTERNATIONAL STRAITS

If the demands of many Third World states for 200-mile territorial seas are successfully resisted and territorial limits are restrained to 12 nautical miles, this will still mean an extension of the traditional sovereignty zone of 3 miles. There are some 121 international straits which are wider than 6 miles (and thus had a zone of high seas in them with 3-mile limits) but which are 24 miles wide or less (and thus would be enclosed by 6-mile limits.) These 121 straits include Gibraltar, Dover, and Malacca, and connect some of the most important bodies of water in the world. In the law of the sea debate, the Soviet Union has consistently insisted that there must be "free passage through straits used for international navigation."⁹ Under traditional international law of the sea, passage through straits within territorial seas is governed by the rules of innocent passage, which not only prohibit underwater passage by submarines and overflight, but can be interpreted to give the coastal state the right to make a security determination concerning the passage of warships. Some states, including the U.S.S.R. (especially in the days before it was a maritime power), have insisted that state must give prior notice before sending warships through straits under innocent passage regimes. The U.S.S.R., at least since 1967, has resisted the extension of innocent passage rules, claiming that this would leave important straits too much under the control of a small group of states, a situation "prejudicial not only to international navigation, but also to the entire international community."¹⁰

To replace the innocent passage rules, the Soviet Union along with Bulgaria, Czechoslovakia, East Germany, Poland, and the Ukraine, presented "Draft Articles on Straits used for International Navigation" to the 1974 Caracas meeting of the Law of the Sea Conference. The most important provision is the first:

In straits used for international navigation between one part of the high seas and another part of the high seas, all ships in transit shall enjoy the equal freedom of navigation for the purpose of transit passage through such straits.¹¹

⁹ A/C.1/PV.1777, at 32 (1970).

¹⁰ A/AC.138/SR.83, at 70-73 (1972).

¹¹ A/CONF.62/C.2/L.11 (1974).

The draft articles explicitly provide that the coastal state shall not have the right to interrupt the free passage of vessels, a distinct improvement over innocent passage rules for a maritime power. Nor do the rules prevent submarine passage or overflight.

The Soviet straits position is very similar to those of the Western maritime powers and very dissimilar from those of states such as Spain and Indonesia which seek to extend their control over neighboring waterways. The Soviet stand primarily benefits the Soviet Navy which would retain favorable passage rights through the straits of the Sea of Japan and the Indonesian straits and which might even have improved passage rights for the Danish straits and the Dardenelles. The Soviet Union has remained firm in its conviction that coastal states should have no right to suspend passage through international straits.¹²

THE EXCLUSIVE ECONOMIC ZONE

Many states, led by the United States, have made a distinction between resource and nonresource use of the oceans. In the 1945 Truman Proclamation, for example, the United States claimed the resources of the continental shelf, but expressly provided that non-resource uses, such as passage, over the shelf would not be affected. This distinction has proved useful for states such as the African states which have sought to control the economic resources off their coasts but do not wish to control the transit of vessels. Since 1971 many African and Latin American states have led the way for a 200-mile exclusive economic zone which would give the coastal state the economic wealth of offshore areas but preserve transit freedoms of the high seas for the maritime powers. This has been a very promising compromise position between the territorial sea claims of some Latin American and other states and the traditionalist claims of the Soviet Union and other maritime powers.

For several years, the U.S.S.R. opposed the claims for an EEZ as "misguided."¹³ But at Caracas in 1974, the Soviet Union, along with the United States, Great Britain, and France, announced its willingness to accept a 200-mile EEZ. The U.S.S.R. also conditioned its acceptance upon strict guarantees of free passage through the zone and, as a *quid pro quo*, an agreement upon 12-mile territorial seas and free passage through international straits.¹⁴

The Soviet decision to accept a 200-mile exclusive economic zone given the free passage assurances is a much greater concession than those made by the other maritime powers. The United States, Great Britain, and France stand to gain considerable economic gain from 200-mile EEZ's. In all these Western countries, there has been considerable pressure from the fishing industry to implement just such measures with or without international agreement. Thus, the 200-mile EEZ protects Western fishermen while providing for Western navies and merchantmen. The Soviet fishing industry, on the other hand, will be significantly harmed by 200-mile EEZ's since most of

¹² V. Romanov broadcast, Mar. 16 1975, in FBIS:U.S.S.R., Mar. 21 1975, at A3.

¹³ A/AC.138/SCII/SR.27, at 3 (1972).

¹⁴ A/CONF.62/C.2/SR.26, at 13 (1974).

Soviet fishing is done off the shores of other countries. In fact, one of the reasons why the Western maritime powers are interested in the 200-mile EEZ is exactly to restrict Soviet fishing. The final decision (and it must have been a tough one) to accept 200-mile exclusive economic zones must have been strongly influenced by the desire to protect Soviet naval operations through international straits and beyond 12-mile territorial limits.

THE CONTINENTAL SHELF

From the beginning of the debate before the Ad Hoc Seabed Committee the Soviet Union has sought to define "more closely" the limits of national jurisdiction over the Continental Shelf.¹⁵ In 1973, the U.S.S.R. proposed Continental Shelf limits of 500 meters or to 100 nautical miles from the coast, whichever was greater.¹⁶ At Caracas, however, the Soviet delegation expressed its willingness to extend those limits to 500 meters or 200 nautical miles from the coast whichever was greater.¹⁷ The importance of this issue for the Soviet Union seems to have become considerably less as the possibility of EEZ's and an international oceanic authority have become greater.

AN INTERNATIONAL OCEANIC AUTHORITY

It was the dream of Pardo and other idealists to create an influential seabed organization with its own territory and income. As the law of the sea debate has developed this dream has seemed increasingly impossible, but the Soviet Union was never one with the idealists. From 1967 to 1970, the Soviet Union continually supported inter-governmental cooperation through UNESCO's Intergovernmental Oceanic Commission as the proper alternative to a new oceanic authority.¹⁸ Not only was the IOC a weak international organization not undermining state authority (the Soviet preference), but during those years its director was a Russian. But the Soviet Union was dismally alone in promoting the IOC and by 1971, faced with no enthusiasm for its proposals and with Third World pressure for a seabed authority, the U.S.S.R. began to deal more seriously with the ocean authority question.

Between 1971 and 1973 the Soviet Union proposed that the seabed authority only coordinate the activities of nations in exploiting the ocean floor.¹⁹ The organization itself would do no mining and the decisions of the authority would be taken by consensus, that is, with the possibility of a Soviet veto.²⁰ These proposals fit in with the Soviet reluctance to accept the very notion of "the common heritage of mankind," which the U.S.S.R. feared would become the preserve of the West's capitalistic corporations.

By 1973 the Soviet Union had moved to a willingness to have mining done both by the authority itself and by individual states.²¹

¹⁵ A/AC.135/SR.11, at 3 (1968).

¹⁶ A/AC.138/SC.II/L.26 (1973).

¹⁷ A/CONF. 62/C.2/SR.20, at 3 (1974).

¹⁸ A/AC.135/SR.3, at 14 (1968); A/AC.138/SR.6, at 55 (1969); A/AC.138/SCII/SR.36, at 28-29 (1970).

¹⁹ A/AC.138/SR.56, at 153 (1971).

²⁰ A/AC.138/SCI/SR.43, at 149 (1972).

²¹ A/AC.138/SCI/SR.68, at 76 (1973).

The Soviet position remains steady insisting that states share in ocean floor mining and that the authority in no way control transit rights, fishing rights, or other freedoms of the high seas apart from seabed exploitation.²²

Although the Soviet position on the international oceanic authority is not too different from those of the Western maritime powers in most regards, one significant difference should be pointed out. Especially in the early years of the U.N. debate, the U.S.S.R. was greatly concerned that any seabed treaty ban all military uses of the ocean floor.²³ Such a ban would include not only offensive weapons but the passive seabed listening devices the United States uses to detect passing submarines. Since the signing of the 1971 Seabed Arms Control Treaty, banning the emplacement of weapons of mass destruction on the ocean floor, the U.S.S.R. has become much less concerned with this issue. There are still, however, passing references to the prohibition of all military activities on the seabed.²⁴

IDEOLOGICAL OVERTONES OF THE LAW OF THE SEA DEBATE

The conservative substance of the Soviet Union's law of the sea policy in the U.N. law of the sea debate has been unwavering. In the first years of the debate the representatives of the U.S.S.R. reconciled this conservatism with the Soviet Union's revolutionary tradition by simply saying that the two were in no way incompatible:

The progressive development of the international law of the sea must be carried out not against, but in conformity with, the generally recognized principles which came into being as a result of lengthy historical development, which became part of the everyday life of states and formed a solid legal foundation for the authority of those states on the oceans of the world.²⁵

This happy reconciliation, worthy of Blackstone, lasted until the entry of the Peoples' Republic of China into the United Nations. Red China has been unwilling to let the Soviet Union pass untormented as a conservative advocate. The seriousness with which the Soviet Union has taken the Chinese attacks can be seen in this rebuttal by a Soviet delegate in the second subcommittee of the Seabed Committee in 1973:

The Chinese representative's attack on the Soviet Union was a slanderous distortion of the truth and that such attacks were becoming repetitive. Moreover, the Chinese representative had singled out the Soviet Union from among the many countries that engaged in fishing on the high seas and had said nothing about the others. The terms "plunder" and "piracy" which he had used had no place in the policy of the Soviet Union, which cooperated with all other countries on a basis of equality. What the Chinese representative described as "plundering" was, in fact, a giving of technical assistance. As to the claim that the Soviet Union imposed its will on others, that was ridiculous.²⁶

²² A/CONF.62/C.1/SR.8, at 8 (1974).

²³ A/AC.135/SR.11, at 3 (1968).

²⁴ A/CONF.62/C.1/SR.8, at 8 (1974).

²⁵ A/C.1/PV.1777, at 47 (1970).

²⁶ A/AC.138/SCII/SR.62, at 242 (1973).

The Soviet delegation has been forced to acclaim its heritage:

The U.S.S.R., faithful to its revolutionary and democratic traditions, was opposed to all that was outmoded and reactionary in international relations.²⁷

Even while admitting:

On the other hand, his country had no intention of doing away with established concepts in international relations which it considered to be of use.²⁸

The inconsistency of the Soviet ideological and substantive positions is another sign of increased East-West collaboration and of the emergence of a North-South split in international relations. The old ideological battle of the cold war is giving way to conflict between the developed and underdeveloped countries. As a developed country, the U.S.S.R. is finding its interests more in line with the Western maritime powers than with the developing Third World states. On law of the sea issues, the Soviet Union even finds itself to the "right" of the United States, Great Britain, and France on some questions such as the exclusive economic zone. The Soviet Union is a leading law of the sea conservative, no matter how much it doth protest.

²⁷ A/AC.138/SCII/SR.5, at 124 (1973).

²⁸ Ibid.

DIPLOMATIC AND ECONOMIC ASPECTS OF SOVIET OCEAN POLICY

(By Uri Ra'an¹)

UNTAPPED WEALTH OF THE SEA

Given the question mark that hangs over a number of natural resource problems within the boundaries of the Soviet empire² it is noteworthy that the eyes of Soviet economists and military men alike are turning increasingly toward the untapped wealth of the sea:

"The content of molybdenum in seaweed is 6,000 times greater than the content in water; iodine—30,000 times; titanium—40,000 times; iron—100,000 times; while the content of tin in the bones of fish is 330,000 times greater; zinc and copper—1 million times; and lead—20 million greater than in water . . ."³

The commander of the Soviet Navy, Adm. S. G. Gorshkov, in his definitive recent series of articles on naval power in the organ of the navy, *Morskoy Sbornik*, devoted a major portion of his concluding article to this very question:

"Areas of the earth unsuited for exploitation today . . . may become suitable tomorrow as the result of the unheralded rapid growth of technical progress which permits finding new methods of exploiting them and extracting profits. . . . In recent decades, in the area of the exploitation of the resources of the world ocean, an ever-increasing struggle began . . . for its division for economic and military aims, since it is becoming an immediate objective. . . . It is quite evident that navies, as an instrument of policy. . . will not be able to take a back seat in this struggle. The level and tempo of the development of science and technology under the conditions of today's scientific-technical revolution are creating vast possibilities for the study, mastery, and use of the world ocean and its bottom for practical economic and military purposes. Therefore, today attempts are already being made . . . to usurp individual areas of it and divide them up into spheres of influence. . . . A highly alarming symptom is the practice of the extension by certain states of their territorial sea up to 200 miles, which is nothing other than an attempt to seize great expanses of the ocean. The main reason for the interest of states in the world ocean is its truly inexhaustible wealth, . . . its vast military significance . . . seawater contains all of

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² The above paragraph is based mainly on U.S. Congress, Joint Economic Committee, *Soviet Economic Prospects for the Seventies*, Robert W. Campbell, Some Issues in Soviet Energy Policy for the Seventies, Washington, 1973, and Robert W. Campbell's article under the same title in *Middle East Information Series*, XXVI-XXVII, 1974. American Academic Association.

³ B. Borovskikh, "Urgent Problems in Planning the Reproduction of Natural Resources," *Ekonomicheskie Nauki*, No. 1, 1973. (See also *Problems of Economics*, November 1973, vol. XVI, No. 7).

the elements of Mendeleev's periodic system, with their total amounts reaching fantastic figures . . . ocean water has some 10 billion tons of gold, 4 billion tons of uranium, and 270 billion tons of heavy water. The reserves of metals, minerals, fuels (oil, gas, and coal), various chemical raw materials, nuclear material, power and food reserves locked in the seabed are so vast that there is no comparison whatsoever with the known reserves existing on land. A considerable part of the seabed is covered with ore concentrations consisting of iron, manganese, cobalt, nickel, copper, and rare earth elements. Geologists believe that great reserves of various natural resources lie in the seabed. Already major deposits of oil and gas are known today in the North Sea, in the Gulf of Mexico, in the Persian Gulf, off the coasts of Alaska and California, and in other areas. Moreover, it is postulated that the main deposits of oil and gas are located not on land but in the seabed. . . . The importance of exploiting them is already increasing. Prospecting for oil and gas reserves is being carried out in almost all areas of the Continental Shelf, and the output of 'maritime' oil is approaching 20 percent of the entire petroleum output. The truly inexhaustible energy resources of the ocean—its tides, currents, temperature gradients of the water . . . also are of vast economic interest. The stores of animal protein, that is fish, sea animals, plankton . . . in the world ocean . . . permit one to regard the sea as one of the most important means to solve the food problem of the world's growing population. Today the catching of fish and other 'gifts of the sea' is carried out only in a small section of the ocean surface consisting of about 10 percent of it. The annual world catch of fish equals some 60 million tons, but in the near future it may reach 100 million tons or more. . . . The problem of obtaining common salt, magnesium, bromide, iodine, and several other substances from seawater has been successfully solved from an economic and technical standpoint; ways have been found to obtain uranium, gold, and other valuable elements from seawater. The dimensions and scale of this work are such that in the near future major changes in the world economy may be affected. . . . Today man is capable of living and working at depths of 200 meters, and soon underwater stations will be lowered to 700 to 1,000 meters. . . . The C.P.S.U. program calls not only for utilization of known natural resources but also prospecting for new ones. The world ocean is assuming extreme importance in connection with this. Its study and the utilization of its resources is becoming one of the greatest state problems aimed at supporting the economic might of the Soviet Union. A great deal of attention was paid to this in the documents of the 24th C.P.S.U. Congress. . . . The growth in appropriations for (oceanic) goals . . . is explained by the economic interest of all states in more complete utilization of the ocean's riches. Today this is one of the most important international and national problems entering the orbit of world politics. Just as in the 19th century the question of the division of land into spheres of influence became particularly acute, at present the intentions of several . . . countries to establish spheres of influence in the

world ocean is becoming no less acute. The . . . states no longer restrict themselves by their own laws on the exploitation of the natural riches of the Continental Shelf: they are striving to extend their national jurisdiction to the open waters of seas and oceans vast distances from their shores. Attempts at usurping certain areas of the seabed by individual . . . countries are becoming a continually more sweeping and widespread practice surpassing in importance certain fields of politics, economics, production, and science. And inevitably contradictions and crisis situations are arising here. Thus, some countries, in carrying out the development and surveying of the Continental Shelf, are already raising the question of prohibiting freedom of navigation and the cruising of naval ships in waters over the location of undersea work, the question of significant expansion of territorial waters, and similar questions. . . . A definite impression on the division of the ocean was made by the signing in 1958 of the Geneva Convention on the Continental Shelf according to which all littoral states were granted the right of ownership of the riches of the seabed in their own sections of the shelf down to a depth of 200 meters or beyond this limit to a point at which the water depth permits exploitation of the resources of this area. A defect in the convention is the absence of a clearcut formulation of the outer limits of the Continental Shelf of the littoral states. . . . Several Afro-Asian and Latin American developing countries are insisting on a review of all existing norms regulating the use of the world ocean. . . . Representatives of these countries put their position on the plane of a struggle between the poor and the rich, between the backward and the industrially developed countries. . . . The delegations of the U.S.S.R. and of other Socialist countries have sharply criticized such extremist views . . . pointing out that such a nonclass approach, the simple division into rich and poor people, was not only unjust but also was . . . insulting to the people of the Socialist countries (who) have created their own wealth themselves, without exploiting anyone. . . . Several developing countries are steadily advancing the idea of developing a convention on the seabed regime and on creating an international organ with very extensive power which would become, essentially, a supranational organ and would control all exploitation of the seabed conducted by different countries. It is quite evident that such an approach is not very realistic, since it actually envisions an institution of some sort of international consortium. . . . Eight Latin American and one African state have 200-mile limits. Experts have calculated that if all countries declared 200-mile territorial waters, then of the 361 million square kilometers of water on our planet, about 140 to 150 million square kilometers would be appropriated by the coastal states. . . . The key to solution of this question is the strict establishment of limitations on the breadth of territorial seas. . . . Based on existing practice . . . it would seem completely acceptable to limit territorial waters up to 12 miles."⁴

⁴ Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoy Sbornik*, February 1973 (signed to press February 5, 1973).

This demonstration of conflict of interest on the ocean between the U.S.S.R. and L.D.C. commodity producers is symptomatic of the ambivalence of the whole Soviet-Third World relationship. For instance, at the first U.N.C.T.A.D. (Conference on Trade and Development) in 1964, Afro-Asian raw material producers proposed that they should be assisted by means of financing and subsidizing arrangements which would, in effect, raise the international price of their exports of natural resources. The U.S.S.R. which, in its relations with Afro-Asian recipients of Soviet economic and military assistance, has assumed the role of a raw material importer (although it acts as an exporter of natural resources vis-a-vis Eastern Europe), reacted most negatively to these suggestions. It stated bluntly that:

"aid through prices must not be effected at the expense of lowering the standard of living of the population of the developed countries"⁵

and that it was "unrealistic" to attempt helping tropical countries by tinkering with the world market price at a time when their local levels of production were still low.⁶ In effect, Moscow was telling Afro-Asian raw material producers that, if they wanted to earn more foreign exchange, they first would have to learn how to work more efficiently.⁷

As against these considerations, the Soviet leaders have found it difficult to resist the temptation to act mischievously in situations such as the recent Arab oil boycott, which Soviet commentators cheered on from the sidelines, adding, for good measure, a suggestion that

"an action against the neocolonialist monopolies [such] as a pool of African producers of nonferrous ores can also become a reality."⁸

In the previous year, Soviet commentators already had invited Africans to use their agricultural and mineral resources to force the West into an active anti-Rhodesian and anti-South African stand.⁹ However, it behooves the U.S.S.R. to act cautiously in this respect; while Soviet oil export prices to the West received a boost as a byproduct of OPEC actions, the Soviet Union, as an importer of raw materials from Third World recipients of Russian economic and military aid, cannot really welcome a "ganging-up" of tropical commodity producers against all developed countries. Thus, it is noteworthy that usually Soviet broadcasts to such countries carefully enumerate the measures that would be really helpful to the LDC, other than a producers cartel, such as removal of customs duties (which, under the Soviet pricing system, is a meaningless step anyway), receiving raw materials in repayment for assistance (which is

⁵ Mirovaia ekonomika i mezhdunarodniye otnosheniia, August 1964.

Komunist, No. 14, 1965.

⁷ Ironically, inside C.M.E.A., where the U.S.S.R. itself occupies the position of a natural resource and energy supplier to its East European allies, Moscow has often complained that raw material prices are inadequate to cover capital investment in agriculture and mining, and that a higher return is needed in these sectors precisely because low productivity renders them expensive. Moreover, repeating almost literally the complaints of L.D.C. importers against the high prices of Soviet machine exports, Moscow has protested that Czechoslovak and East German machinery is sold to the U.S.S.R. at inflated charges, without reductions for large-scale orders and without consideration of the fact that such equipment is qualitatively inferior to Western products and should, therefore, be sold at a discount. (Mirovaia ekonomika . . . , May 1966.)

⁸ Moscow Radio in English to Africa, Apr. 3, 1974. See Jean Riollot, "A Soviet View of the 'Raw Materials Crisis,'" Radio Liberty Dispatch, Apr. 11, 1974.

⁹ See Jean Riollot, *Ibid.*

standard Soviet practice), help in processing raw materials, etc.¹⁰ Given the circumstances, Soviet relations with Third World raw material producers cannot be much more than ambivalent.

There remains the question of the vulnerability of the sealanes linking developed states with overseas raw material and energy sources.

Admiral Zumwalt has pointed out that "69 of our 72 critical raw materials come to us by sea" and that, by 1980, "we will be requiring about 50 percent of our oil from overseas." Drew Middleton has commented that "the vulnerability of such seaborne supplies has increased with the development in the Russian fleet of nuclear-powered submarines, armed with torpedoes and missiles, and cruisers and destroyers equipped with missiles with ranges of 500 miles and more. This threat to American maritime traffic . . . has led to new areas of naval construction." Among these are 3 *Nimitz* class attack carriers, "floating, sovereign airfields . . . whose purpose . . . is to protect the sealanes from air attack," as well as "sea control ships" for A.S.W., with helicopters and V/STOL aircraft, and 250 new escorts, including DLGN nuclear-powered frigates. "Congressional criticism of the program has cooled considerably in the wake of the energy crisis and a new national realization of national dependence on overseas supplies . . . the principal threat . . . to American merchantmen remain the Russian submarines."¹¹

This appraisal is very largely borne out by the almost obsessive preoccupation with the potential of naval warfare against maritime arteries, particularly submarine warfare, revealed in Admiral Gorshkov's definitive series of articles. The opening lines of the very first article deal with the sea as a conveyor belt of natural resources:

"For many centuries the ocean expanses have . . . been convenient means of communication between continents and between the suppliers of products vitally essential to mankind. . . . The potential military might of one state . . . built up in accordance with its economic capabilities and political orientation, permitted it to conduct a policy advantageous to itself, to the detriment of other states. . . . Among the elements . . . affecting the development of . . . the armed forces of states, are the seas and oceans (which constitute the major pathway) of commerce, of reliable routes of communication, . . . and of the fishing and maritime industries. . . . It is impossible not to note how man's ability to comprehend the ocean and to use it for his own needs directly affects the growth of the political prestige of the country and its economic and military might. . . . The seas and oceans serve as an inexhaustible source of diverse food resources, industrial raw materials, and energy. The most important and economically most advantageous routes of communications between countries, through which trade . . . [is] carried out, pass through the seas and oceans. All of this determines the special role of the seas and oceans in the economy of states. [and leads to] the building up in the maritime countries of many areas of industry and an economy dependent on the sea. . . . Maritime states

¹⁰ See Jean Riolo, *Ibid.*, (Soviet) Radio Peace and Progress in English to Asia, Apr. 8, 1974.

¹¹ Drew Middleton in *The New York Times*, May 27, 1974.

having great economic capabilities have widely used their naval forces in peacetime to put pressure on their enemies, as a type of military demonstration, as threats of interrupting sea communications, and as a hindrance to ocean commerce."¹²

Applying his theories to one particularly vital naval communications area, where disruption cannot but have a direct bearing on the supply of energy, Admiral Gorshkov continues:

"Our Fleet has shown the whole world that the Mediterranean Sea is not anyone's preserve or a closed lake and that Russia is a Mediterranean power. The location of its forces in these waters is based . . . on . . . the age-old need for the Russian Fleet to stay there. Today . . . this region has assumed especially important significance. . . . It is natural that . . . the Soviet Union is forced to . . . implement its indisputable and legal right to have warships in the Mediterranean Sea. . . . And if our enemies more and more often look at the Soviet Navy and see in it . . . a hindrance . . . this means that it is carrying out the mission assigned to it. The Western . . . press, and state and military figures . . . write and say that the 'political influence of the Russians in this strategically important sea is directly proportional to the numerical strength of their fleet'."¹³

In connection with the vital role, and the vulnerability, of sea communications in World War I, Admiral Gorshkov stresses:

"The erosion of the military-economic resources . . . in the belligerent countries forced their governments to seek avenues to accelerate the end of the war. In this connection, the economies of Great Britain and France, being supplied by sea with the resources of almost the entire world, were in a more satisfactory condition, and this made it possible for them to wage a prolonged war and count on success. Germany, on the other hand, due to the naval blockade felt the sharp deficiency in raw materials and foodstuffs, and therefore a prolonged war promised defeat for her. . . . Under these conditions Germany . . . say . . . a way out in unrestricted submarine operations against the sea communications of Great Britain. . . . The losses of the enemy's (sic:) merchant fleet grew continuously. Despite the efforts undertaken by the British the production of merchant fleet tonnage was only about 10 percent of the losses. As a result of the unrestricted submarine warfare . . . Great Britain herself seemed to be on the verge of economic catastrophe. Vast ASW forces of the Entente . . . were thrown into the battle against the submarines. . . . However, despite this, the merchant fleet's losses continued to be high. Only in the latter period of the war did the effectiveness of the submarines drop, primarily due to the fact that the German command, after having assigned the prosecution of the main effort to them, failed to divert other naval forces to support their operations (which was particularly necessary in connection with the growth of the ASW forces of the Entente . . .). In response . . . the Germans merely introduced new submarines into service. However their introduction turned out to be too little too late (due to the absence of support

¹² Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoy Sbornik*, No. 2, 1972.

¹³ Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoy Sbornik*, No. 3, 1972.

of their operations). The dependence of the British economy on imported raw materials and also on the fact that without a supply of food products the British population would have been threatened with starvation made her especially sensitive to a naval blockade. And the German submarine forces delivered an attack of staggering force in this direction. In the war they sunk more than 11 million G.R.T. making up 65 percent of the British merchant marine, which was the largest in the prewar years. Great Britain managed to avoid catastrophe only owing to errors by the German command . . ."¹⁴

What is noticeable is Admiral Gorshkov's obvious belief that, but for some errors, the Germans could have won unrestricted submarine warfare and his almost poignant regret that they made those errors (in a psychologically revealing slip, he refers to Entente merchant shipping as "the enemy"). There is little doubt on whose side he is verbally refighting the Battle of the Atlantic of World War I and, as will be seen, of World War II. His sympathies are entirely on the side of the submarines. He goes out of his way to stress:

"it became clear . . . that submarines, and not gunnery ships . . . represented the main threat both for the navies and the economies of the belligerents."¹⁵

In his analysis of World War II, Admiral Gorshkov continues with his emphasis upon the central role played by submarine attempts to cut resource supply lines. Indeed, he places this task first in his order of priorities:

"In our view, . . . the navies were charged with the following missions: To disrupt the sea and ocean communications of the enemy in order to undermine his military-economic potential [then follow five other main missions]. . . . Different types of naval forces played far from the same role in the battle of sea communications. Thus, of the total number of destroyed transports, submarines sank more than 65 percent, aviation about 20 percent, surface ships 6 percent and 8 percent perished on mines. . . . Germany sank 5,150 ships, whereby 68 percent of the destroyed tonnage was chalked up by submarines . . . the Americans sank 2,143 Japanese ships, and 62.1 percent of the tonnage was accounted for by submarines. . . . From the cited figures it follows that in World War II submarines were actually the main forces in the battle with enemy shipping . . . [however, because of the battles on the Russian front] the appropriations allocated to the German Navy were reduced from 12.1 percent in 1942 to 5.6 percent in 1944, [whereas] more than 2,000 British and American ASW combatants and specially configured merchantmen and several thousand aircraft were in operation against the German U-boats in the Atlantic For each German U-boat there were 25 British and U.S. warships and 100 aircraft, and for every German submariner at sea there were 100 British and American antisubmariners. A total of 6 million men (sic) were thrown into the antisubmarine war. . . . Yet, nevertheless, this significant numerical superiority of defenses was insufficient to force the attackers to fully curtail their active

¹⁴ Adm. S. G. Gorshkov, "Navies in War and in peace," *Morskoy Sbornik*, No. 5, 1972.

¹⁵ *Ibid.*

operations. Therefore the question of the ratio of submarine to antisubmarine forces is of great interest even under present-day conditions, since if A.S.W. forces which were so numerous and technically up-to-date (for that time), possessing a vast superiority, turned out to be capable only of partially limiting the operations of diesel submarines, then what must this superiority be today to counter nuclear-powered submarines, whose [superior] combat capabilities cannot be compared with the capabilities of World War II era submarines.

Although the A.S.W. forces pressed the submarines considerably, they were unable to discredit them and knock them out. . . . The submarines turned out to be very much alive: of all the armed forces of . . . Germany only they presented a serious threat to British and U.S. shipping right up to the very last day of the war. . . . From all that has been said it is clear that submarines in World War II were, and even more so under modern conditions are the main means of combating the enemy's shipping . . . [On the other hand, Germany in World War II, unlike Britain and unlike Germany herself in World War I, was not bothered unduly by naval blockade, because the Germans] succeeded in seizing and putting at the service of their own military machine the economies and the vast natural resources of almost all of the . . . European countries.¹⁶

[Admiral Gorshkov stresses that German submarines during World War II could have achieved much more, but for the fact] that the submarines did not receive support from the other forces, and above all from the air force, which would have been able both to carry out reconnaissance for the submarines and destroy A.S.W. forces, as well as to operate against the enemy's economy by attacking his ports and targets in the shipbuilding industry, not to mention attacks against ships at sea. These reasons considerably reduced the effectiveness of German submarine employment in cutting off the enemy's shipping in the Atlantic. . . . An analysis of the struggle for Atlantic and Pacific communications . . . permits the conclusion that the interruption of sea shipping to a great degree weakened the economies of the belligerents and had a definite influence on the course of the military operations. . . . On the eve of World War II the opinion existed . . . that submarines were a weapon of the weak. The course of the war at sea totally refuted this. Moreover, submarines became the most important means of combat at sea."¹⁷

Admiral Gorshkov leaves no doubt that the naval capabilities, which he regards as being so effective in war, have their political and psychological utility in nonwar situations as well:

"The Navy possesses the capability vividly to demonstrate the economic and military power of a country beyond its borders during peacetime. This quality is normally used by the political leadership . . . to show their readiness for decisive actions, to deter or suppress the intentions of potential enemies, as well

¹⁶ The implication is obvious: In case of hostilities today, the U.S.S.R., like Germany in World War II, would be able to seize most of Europe—and, perhaps, the Middle East—thus becoming far less vulnerable to an interdiction of seafarers. On the other hand, the Soviet Union, with its huge submarine force, could wage effective warfare against Western sea communications.

¹⁷ Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoj Sbornik*, No. 11, 1972.

as to support 'friendly states'. It should be noted that the arsenal of instruments of such demonstrations is constantly being expanded . . . aimed at a clearly evident goal: to surprise probable enemies with the perfection of equipment being exhibited, to affect their morale, to intimidate them right up to the outbreak of war, and to suggest to them in advance the hopelessness of fighting. . . . Today's combatants carry not only guns, but also nuclear-missile weaponry and aircraft, whose operating ranges can cover the entire territory of a foreign state. Therefore the capability of navies to appear suddenly close to the shores of different countries and immediately proceed to carry out their assigned missions . . . [is] an important weapon of diplomacy and policy in peacetime, which in many cases has permitted the achievement of political goals without resorting to military operations by only threatening to initiate them. . . . The Soviet Armed Forces, including also the navy, have emerged as one of the instruments of Soviet policy. . . . The creation at the will of the party of a new Soviet Navy and its emergence onto the ocean expanses have fundamentally altered the relative strength of forces. . . . The former inaccessibility of the continents, which permitted them to count on impunity . . . in the past, has now become ancient history."¹⁸

"The United States having created a situation for the Socialist countries in which they are surrounded from the direction of the sea, [has] not experienced a similar danger. Could the Soviet Union reconcile itself to such a situation? Could it agree to an age-long domination of the seas and oceans by the traditional Western sea powers . . . ? Of course not! . . . Just the presence of our navy imposes on [the adversary] the need to solve those same problems himself which he thought he was creating for [us]. . . . The need to build a powerful ocean-going navy . . . was backed up and is being backed up by the vast capabilities of the military economic potential of the Soviet state and by the achievement of our science and technology. In speaking of the military economic potential of our country, it should be noted that it possesses vast, practically inexhaustible energy, raw material, and fuel resources. . . . In giving priority to the development of submarine forces . . . the Navy is . . . acquiring the capability . . . of participating in the crushing of an enemy's military economic potential . . ."¹⁹

It may be questioned why, under conditions of thermonuclear warfare, Soviet leaders should think that there would be enough time left for the cutting of sealanes and the interdicting of supplies of energy and natural resources to make a significant difference. An authoritative Soviet handbook on military thought, of which a special English-language edition was recently issued in Moscow, answers this point very clearly:

" . . . at the very beginning of the war, after the first nuclear missile exchange, a sharp and radical change may set in in the relation of the combatants' economic potentials. Does all this mean that the economy, which plays a decisive role during the

¹⁸ Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoy Sbornik*, No. 12, 1972.

¹⁹ Adm. S. G. Gorshkov, "Navies in War and in Peace," *Morskoy Sbornik*, No. 2, February 1973.

period of the preparation for nuclear war, will have no importance in the course of the war itself? Some bourgeois authors draw this conclusion irrespective of whether the future war will be a short or a long one, or of how it will begin. . . . It is difficult to agree with this point of view—the war may start as a conventional one and may only eventually grow into a nuclear one; the warring sides may under definite conditions be strong enough to wage a lengthy war and then its course and outcome will be enormously effective [sic] by the state of the combatants' economy. . . . In all probability the war will not end with an exchange of annihilating nuclear missile strikes. Despite the heavy destruction some part of industrial enterprise and other economic objectives will survive. It is therefore very possible that the remaining enterprises will be engaged both in the production of weapons and in catering to the needs of the population who have survived the bombings and radiation. *Under these conditions decisive importance is acquired not only by the existing industrial potential of the warring coalitions, but also by their viability and mobility: the vulnerability of industry and communications and the ability to restore industrial production in the course of the war.*"²⁰

Of course, as has been pointed out earlier, the Soviet Union's own resource and energy situation is not without its vulnerabilities economically; under wartime conditions, extremely long pipelines with pumps and compressors, linking sparsely-inhabited Siberian energy sources with the western U.S.S.R. and its Eastern European allies, would offer tempting targets that could be hit without causing major civilian casualties.

However, vulnerable resource and energy arteries are of major importance not only under war conditions (a full-scale global war being, in any case, a repugnant and implausible contingency); as Admiral Gorshkov has pointed out, armed forces, including naval forces and submarines, are not merely instruments of war, but means of pressure for the achievement of political goals under nonwar conditions. The threat (implicit or explicit) of severing such arteries, especially between the West and its overseas sources of energy, could constitute a very effective means of pressure.

As an astute eyewitness of the Soviet scene has commented:

"The entire history of the U.S.S.R. demonstrates that the Soviet leaders place political goals above economic aims, although they have often been forced by economic crises to retrench. Hence, they are making an all-out effort to eliminate as quickly as possible their dependence on foreign economic ties. [The U.S.S.R., of course, wishes] to . . . derive maximum benefit from the West's technological and economic potential, and [at the same time, also reveals] a readiness to foster local conflicts in order to achieve Soviet goals, yet retreat when a global clash threatens. Soviet diplomacy has played its far from brilliant cards very ably and has largely managed to convince the West that the development of foreign trade is of far more benefit to it than to the Soviet Union. What is more, it has even used this factor as an instrument of pressure on the Western countries."

²⁰ Marxism-Leninism on War and Army, Progress Publishers, Moscow, 1972, pp. 222-223. (The work became available in the summer of 1973.)

"A fitting coda is provided by something that Henry Kissinger wrote in 1957: 'We retreat before Soviet might and yet we are afraid to make use of Soviet difficulties. This difference in willingness to take a risk has been the Soviet Union's main advantage in the postwar period, almost outweighing all its shortcomings.'" ²¹

²¹ "Foreign Trade as a Factor in Soviet Policy," by Allan Kroncher, Radio Liberty Dispatch, R.L. 148/74, May 22, 1974. [His quotation from Dr. Kissinger's works is taken from a Russian edition of "Nuclear Weapons and Foreign Policy."]

THE CONTEMPORARY SOVIET-JAPANESE FISHERIES ISSUE

FROM CONFLICT TOWARD COOPERATION

(By Pamela Houghtaling¹)

SUMMARY

Normalization of Japanese-Soviet relations occurred on May 14, 1956 when both nations signed the "Convention on Fishing on the High Seas in the Northwest Pacific Ocean". Although no formal peace treaty followed, and diplomatic relations were not immediately resumed, a trend toward cooperation existed at that time. In comparison to 1956, the contemporary state of Soviet-Japanese fishing relations is characterized by a greater degree of cooperation, perhaps more from necessity than a genuine resolution of differences. Both sides appear more willing to discuss the non-controversial issues, at least in general terms. With respect to the problematic issues, no substantive progress has been realized since the inception of this post-war relationship. Over time, this fisheries relationship has developed around two crucial issues: regulation of fish resources and safe fishing operations. Both issues illustrate the inherent tension in this relationship, as each side continues to oppose the other. However, both sides have tacitly recognized the need to reach an accommodation in light of the political and economic dimensions of the fishing relationship, which have come more sharply into focus with the passage of time.

The fisheries issue is a mix of oceanic, economic, and political factors, changing over time. At the end of World War II, the Soviet Union secured a powerful international position for itself and was thus able to assert its control over the disputed territory and also demand regulation of fishing in the Northwestern Pacific Ocean. Today, Soviet military power is still a formidable presence to the Japanese. In contrast to its position after the war, Japan now stands as a major economic power with the financial, industrial and technological capability to offer assistance in Soviet internal development programs. This gives Japan leverage in its dealing with the Soviet Union by enhancing its value as an economic partner. Aside from the broader political and economic aspects of this bilateral relationship, conservation concerns also influence the Soviet posture in the negotiations. This case study of the Soviet-Japanese fisheries issue presents an analysis of the subject chiefly as it relates to the disputed territory and the Asian power struggle.

¹ The author was at the time of drafting, a researcher with the Congressional Research Service, Library of Congress.

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INTRODUCTION

The fisheries issue has played an important, although at times detrimental, role in the development of "good-neighborly" Soviet-Japanese relations. While relations in general have been steadily improving between the two countries, fishery negotiations continue to encounter both progress and problems. In the past, the Soviet Union has exerted various forms of pressure upon Japan to secure its interests, including reductions of quotas and fishing areas, seizure and detention of scores of Japanese fishermen, and refusal to negotiate over certain issues. However, productive bilateral discussions have lessened the degree of conflict in procedural matters and have resulted in the creation of some cooperative endeavors.

The Soviet-Japanese Fisheries Commission for the Northwest Pacific was established in conjunction with the normalization of Soviet-Japanese relations in May of 1956. This regulatory body has continued to meet on an annual basis to determine the quota and conditions of salmon, herring, and crab fishing in the interest of the rational utilization of resources, and illustrates the success of bilateral discussions in promoting cooperative endeavors.

Japan rates as the world's foremost fishing power, followed by the Soviet Union. Fishing relations between these two countries are complicated both by the obvious importance of this industry to their national economies and by their geographic proximity. Fish products constitute an integral part of both national diets. Traditionally, the Japanese have fished for salmon and crab near Russian waters. More recently, Soviet fishing fleets have been operating near Japanese waters in search of mackerel. Such use of each other's fishing grounds highlights the need for procedural agreements in order to lessen the potential for conflict.

The bilateral fisheries agreements demonstrate a trend toward cooperation. In addition to agreements on such maritime resources as salmon, herring, crab, sea kale, and whales, the Soviet Union and Japan have reached an agreement on technical and scientific cooperation. These agreements provide a basis of understanding and highlight the substantive areas which have potential resolutions. Agreements in this area provide insight into the nature of Soviet ocean's policy and are significant in both a substantive and a political sense. For example, the Soviet perception of American and Chinese roles in Asia influence Soviet maritime agreements with Japan. The fisheries issue therefore cannot be separated from the general political and economic dimensions of Soviet-Japanese relations.

Since 1956, progress has been made in the areas of regulatory fishing measures, scientific cooperation, and most recently, claims settlement. However, the dispute over the sovereignty of the Southern Kurile Islands remains unresolved and continues to cause friction between the two countries. At stake are the four islands of Shikotan, the Habomai group, Kunashiri, and Etorofu. These islands, controlled by the Soviets but claimed by the Japanese, are located north of the Japanese island of Hokkaido. Japan insists upon resolution of the territorial dispute of these "Northern Territories" before the conclusion of a peace treaty, while the Soviet Union stresses the need to secure the latter first. The Japanese demand for the return of

all four islands has continually encountered Soviet intransigence. (See enclosed map.)



Source: Based on material furnished by National Marine Fisheries Service, U.S. Department of Commerce.

Both countries attach great importance to their foreign fishery operations. The Soviets, concerned by resource depletion from over-fishing on what they perceive as Soviet territory, have advocated a restrictive fishing policy. This policy has been most harmful to the Japanese economy because of the traditional significance of fish to the Japanese diet. Ironically, while the Soviet government has insisted that such a policy is necessary for conservation reasons, it has increased its fishing operations near the Japanese coastline. This conflict, in addition to the territorial issue, has made the Northwest Pacific area a battleground for the ongoing fisheries dispute. As a result, safe fishing operations have become a crucial issue to both nations.

Troubles have arisen in two different areas—the open waters near the Japanese coastline and the disputed “northern territorial” waters, traditional Japanese fishing grounds. In both cases, the Soviet Union seems to have the upper hand at the expense of the Japanese fishermen. Incidents in the first area involve damage to Japanese fishing equipment by the larger Soviet operation. Soviet actions in the second area stem from political considerations—the constant manifestation of sovereignty over the disputed islands.

In another attempt toward the improvement of bilateral fishing relations, the most recent agreement of June 1975 provides for the establishment of permanent claims settlement commissions in both Moscow and Tokyo. Exchange of information in this area could also help reduce incidents in the open waters near the Japanese coastline and thereby promote safe fishing operations.

In general, the fisheries issue has become more timely in view of the current Law of the Sea Conference sponsored by the United Nations and the prospect of an international treaty. Having long claimed a 12-mile territorial sea, the Soviet Union also supports the concept of the 200-mile economic zone. In contrast, Japan claims only a 3-mile territorial sea. In the course of their discussions, the Soviets have pressed the Japanese for their cooperation at the Conference in view of their “common interests”.

In addition, the depletion of maritime resources necessitates cooperation in an area of vital importance to these two major fishing powers. The Soviet Union has expressed growing concern over the depletion of stock in the Northwest Pacific and consequently has sought a substantial reduction in the annual quotas of salmon, herring, and crab, much to the dissatisfaction of the Japanese. The Soviets contend that Japan should be more concerned with conserving resources, rather than with increasing its catch. Thus, although economics dictates an expansion of operations to satisfy both domestic consumption and export demands, the supply of fish resources is not infinite.

THE NORTHWESTERN PACIFIC OCEAN FISHERIES

Fishing activities in the Northwestern Pacific Ocean reflect the interaction of political, economic, and conservation pressures. Fishing for salmon, herring, crab, and other marine resources in this area is regulated on an annual basis by the Soviet-Japanese Fisheries Commission for the Northwest Pacific created in 1956. While pleading the need for conservation, the Soviets took unilateral action in February, 1956 to restrict salmon fishing in the Northwest Pacific (west of long 170° E—the “Bulganin Line”), thus contributing to the conclusion of a fishery treaty and the restoration of normal diplomatic relations. The fisheries agreement preceded the formal establishment of relations, but would not become effective until the latter was achieved. The Soviet unilateral declaration on restricted fishing strongly influenced the Japanese to enter into bilateral negotiations and to accept the concept of joint regulation over the area, thus resulting in a form of partnership.

Although negotiations on the peace treaty began in June 1955, the territorial dispute, which grew out of the continuing postwar Soviet

occupation and San Francisco Treaty of 1951, continued to obstruct the restoration of relations. On October 19, 1956, following the fisheries agreement of May 14, 1956, bilateral relations were normalized, on the condition that negotiations on the territorial issue would continue. Reference to the fisheries agreement is contained within the "Joint Declaration":

The Convention on deep-sea fishing in the northwestern sector of the Pacific Ocean between the Union of Soviet Socialist Republics and Japan and the Agreement between the Union of Soviet Socialist Republics and Japan on cooperation in the rescue of persons in distress at sea, both signed at Moscow on 14 May 1956, shall come into effect simultaneously with this Joint Declaration.

Having regard to the interest of both the U.S.S.R. and Japan in the conservation and rational use of the national fishery resources and other biological resources of the sea, the U.S.S.R. and Japan shall, in a spirit of cooperation, take measures to conserve and develop fishery resources, and to regulate and restrict deepsea fishing.²

Japanese salmon fishing near Russian territory can be traced back to the latter half of the 19th century. The defeat of Russia in the Russo-Japanese War of 1904–05 and the subsequent treaty facilitated the expansion of Japanese fishing activities. After the Russian revolution in 1917, the Soviet Government recognized Japanese fishing rights to some extent while simultaneously attempting to expand its own operations. The proportion of lots was decreased for the Japanese in favor of Soviet fishermen. During the prewar period, both governments engaged in negotiations over the fishing lot allocation.

Meanwhile, the Japanese began a mothership-type salmon fishery in waters near Kamchatka. In addition, drift net and trap fishing were developed by the Japanese near the northern Kurile Islands, which were still under their control. These operations permitted the interception of salmon migrating to Russian streams, thereby reducing the inshore Soviet salmon catch.

However, the defeat of Japan in World War II and the development of the Soviet fishing industry and increased political stature strengthened the Soviet position in subsequent fishery negotiations. The Soviet-Japanese "Convention on Fishing on the High Seas in the Northwest Pacific Ocean" was initiated by Soviet pressure and terminated the expansion of Japanese high seas salmon fishing. In this way, Soviet foreign policy reflecting domestic concerns affected the course of Japanese domestic policy. Throughout the fishery negotiations, the Soviet approach has been shaped by political and maritime considerations on both the domestic and international levels. In view of the very real problem of shrinking resources caused by overfishing, Soviet actions have also stemmed from concern over conservation.

The regulatory area, defined by the Convention, included the Okhotsk Sea, Bering Sea, and Japan Sea. Since then, certain areas have been closed to fishing. In 1958, waters of the east coast of the Kamchatka Peninsula were closed, followed by the entire Sea of Ok-

² Hellman, Donald C. "Japanese Foreign Policy and Domestic Politics: The Peace Agreement with the Soviet Union." Berkeley and Los Angeles, University of California Press, 1969, p. 163.

hotsk in 1959. The Soviet-Japanese Fisheries Commission for the Northwest Pacific resolved in 1958:

"Taking into consideration the fact that salmon fishing in the open regions of the Okhotsk Sea, along the routes of salmon migration to natural spawning grounds, does not provide proper conditions for the conservation and enrichment of stocks of these valuable fishes, salmon fishing in the open regions of the Sea of Okhotsk shall cease as of 1 January 1959."³

A southward extension of the regulatory area, "Zone B," came into effect in 1962. This increase in restricted areas was accompanied by reductions in annual quotas in an effort to conserve fish resources.

Conservation of Far Eastern salmon resources is discussed at annual meetings of the Soviet-Japanese Fisheries Commission. Protective measures have been in order to insure the natural reproduction of the fish and a higher repletion level in the spawning grounds. Attention is also focused on operations to improve biological techniques for artificial propagation in aquaculture nurseries. In addition, improvement projects have been undertaken at Far Eastern river and stream spawning grounds in order to improve conditions for artificial propagation.

The recent fisheries talks in June 1975 resulted in an agreement to cooperate on a salmon breeding complex in Southern Sakhalin, the first joint Soviet-Japanese fish breeding project. This agreement reached by the Soviet Fisheries Minister Ishkov and Japanese Agriculture-Forestry Minister Shintaro Abe in Tokyo provides for a preparatory meeting of Soviet and Japanese experts to plan the project. Other study meetings on scientific and technological cooperation have also been scheduled to strengthen fishing relations between the two countries.

The Soviet-Japanese Fisheries Commission also sets the annual quota for crab fishing. Historically, the Soviet Government has permitted Japanese crab fishing from its continental shelf off the west coast of the Kamchatka Peninsula. The length of the annual negotiations directly affects both the quantity and the quality of the crab catch. Once the season begins, every day without an agreement harms Japanese operations. The profitability of the industry depends upon the quality of the crab meat, which is at its best in the beginning of the season.

Citing a severe depletion of resources, the Soviet Union has closed certain crabbing grounds and substantially lowered the quota. For example, the negotiations in 1974 resulted in a 50 percent decrease in the king crab quota from the previous year. In addition, Japan was forced to abandon canning ship-type operations in favor of small, individual fishing boats. The stiff bargaining posture assumed by the Soviet delegation set the tone for the negotiations, which began on March 1, 1974. After 57 days of discussions, agreement was reached on the salmon, herring, and crab quotas for 1974. The 1975 crab fishery talks in Moscow resulted in a total ban on king crab fishing off the western coast of Kamchatka, a major crabbing ground. (See Table 1 and Figure 1.

³ Volkov, A. A. "Maritime Law." Jerusalem, Israel Program for Scientific Translations, 1971. p. 88.

The Soviet Union maintains that crabs found on its Far Eastern continental shelf are *ipso facto* Soviet property. Therefore, Japanese crab fishermen would be completely subject to Soviet restrictions. In fact, Soviet authorities have fined Japanese fishermen for violating the protection of resources on the Soviet continental shelf. However, Japan does not recognize Soviet sovereignty over its continental shelf beyond the 12-mile territorial sea. The Soviet Union bases its claim to the resources of its continental shelf on its participation in the 1958 Geneva Convention on the Continental Shelf, which Japan did not sign. As a "manifestation of good-neighborship in international fishery practice", the Soviet Union does permit Japan to engage in limited crab fishing on its shelf zone.⁴

In contrast to the Soviet Union, Japan claims only a three-mile territorial sea in support of its distant fishing operations. However, domestic pressures and the trend of international opinion in favor of it have persuaded the Japanese Government to support the proposed 12-mile territorial sea at the forthcoming Law of the Sea Conference sponsored by the United Nations in Geneva. Expansion of the territorial sea could help to alleviate Japanese conflicts with the Soviets.

THE ISSUE OF SAFE FISHING OPERATIONS

The issue of safe fishing operations off the coast of Japan, has also been a major concern to the Japanese and Soviets. It is a problem which keeps recurring and raises anew the whole range of issues related to the larger territorial question.

The territorial issue may be the most important issue in Japanese foreign relations.⁵ Stressing this point at the outset of the October 1973 Japan-Soviet summit, Prime Minister Kakuei Tanaka stated that, "Japan-Soviet relations could not be improved without a solution to the territorial problem."⁶ As foreign policy plays a major role in Japanese domestic politics, the territorial issue is a major domestic political issue as well. In discussion of the October 1973 Japan-Soviet summit, the Japan Times noted that Soviet seizure of Japanese fishing boats operating in the Northern Pacific and detention of Japanese fishermen in the U.S.S.R. were to be understood as problems directly related to the territorial issue, and therefore issues which must be resolved before Japan-Soviet relations could be improved.⁷

The Soviets, for their part, do not choose to consider the territorial problems as either juridical or diplomatic issues. They maintain that the "Northern Territories" problem is an American creation, in a cold war atmosphere, of issues they feel were settled permanently by the World War II peace treaty. These territories are coveted to establish foreign military bases in the Soviet view.⁸ In spite of the Soviet position, the Japanese have attempted to have the territorial issue and safe fishing included in the agenda of Soviet-Japanese summits and in most other meetings.⁹

⁴ The Japan Times, April 18, 1975.

⁵ Young C. Kim, Japanese-Soviet Relations: Politics, Economics and National Security. Center for Strategic and International Studies, Georgetown University, Washington, D.C., 1974.

⁶ U.S. Congress. Senate. Committee on Foreign Relations. Western Investment in Communist Economies: a survey by John P. Hardt, George D. Holliday, Young C. Kim. Washington, U.S. Gov't. Print. off., August, 1974.

⁷ The Japan Times, October 10, 1973.

⁸ Ibid., October 12, 1973.

⁹ D. V. Petrov, Yaponiya v Mirovoi Politike. (Japan in World Politics). Moscow, International Relations Publishing House, 1973. p. 233.

⁹ The Japan Times, April 22, 1972, March 29, 1973, October 23, 1973, June 7, 1975.

The 1975 negotiations have furthered bilateral fisheries relations in both procedural and cooperative endeavors. The discussion in early June between Soviet Fisheries Minister Ishkov and Japanese Agriculture-Forestry Minister Abe in Tokyo also touched upon the Law of the Sea Conference. Both sides reportedly expressed the need for bilateral cooperation at the Conference in view of their common interests as major fishing powers. To strengthen their fishery relations and to further cooperation, both sides agreed to hold annual ministerial conferences and various scientific consultations.¹⁰

On June 7, 1975, Ishkov and Japanese Foreign Minister Miyaoka signed the agreement on fishing operations near Japan's coastal waters. The increasing denunciation of Soviet activities by both Tokyo and Peking had contributed at least to a partial solution of the problem. Special committees are to be established in both Moscow and Tokyo to settle disputes. In addition, information on each other's fishing operations is to be exchanged and governmental consultations are to be held. Ishkov emphasized the "new quality" in bilateral fishing relations based upon this additional area of agreement.¹¹

The issue of safe fishing operations illustrates the tension inherent in this competitive relationship. Economic demands serve as the impetus for Soviet and Japanese expansion in the scale of operations. The friction caused by the Soviet expansion of operations exacerbates the existing friction in bilateral fishing relations and thus impedes resolution of other sensitive bilateral issues. Yet, the issue of safe fishing operations refers not only to Soviet activities near Japanese coastal waters, but also to the Soviet treatment of Japanese fishermen in the disputed territorial waters. Bilateral actions in the latter area convey broader implications that extend beyond the fishing industry.¹²

THE DISPUTED ISLANDS—PEACE TREATY NEXUS

The conclusion of a peace treaty between the Soviet Union and Japan depends upon resolution of the "Northern Territories" dispute, which also affects bilateral fishing relations. In essence, the dispute concerns the sovereignty of four islands in the Kurile chain: Shikotan, the Habomai Group, Kunashiri, and Etorofu. Prior to World War II, Japan exercised sovereignty over these islands. Soviet forces seized control over this territory at the close of World War II. The Japanese population was repatriated and replaced by Soviet nationals, who engage chiefly in fishing. Disputes on sovereignty between the Soviet Union and Japan are based on different interpretations of the secret Yalta agreement, Cairo and Potsdam Declarations, and the San Francisco Peace Treaty of 1951. The Soviet claim is primarily based on the Yalta Agreement of 1945 which stipulates:

The former rights of Russia violated by the treacherous attack of Japan in 1904 shall be restored, viz:

(a) the southern part of Sakhalin, as well as the islands adjacent to it, shall be returned to the Soviet Union . . .

The Kurile Islands shall be handed back to the Soviet Union.

¹⁰ Ibid., June 7, 1975.

¹¹ Ibid., June 7, 1975.

¹² Ibid., October 12, 1973.

The Japanese emphasis is on the San Francisco Treaty, which they claim does not confer sovereignty to a specific nation, least of all to the Soviet Union, who was not a signatory.¹³ Article 2, Paragraph C of the San Francisco Treaty states:

Japan renounces all right, title, and claim to the Kurile Islands and to that portion of Sakhalin and the islands adjacent to it over which Japan acquired sovereignty as a consequence of the Treaty of Portsmouth of September 5, 1905.

The Soviet position reflects concern over the possible effects any territorial concession would exert upon the acrimonious and long-standing Sino-Soviet border dispute. In rebuttal, the Japanese position contends that Japanese historical sovereignty over the islands and subjective interpretations of the cited international agreements justify its claim, or at least, do not support the Soviet claim.

Originally, the Joint Declaration of 1956 alluded to the possibility of the Soviet transfer of the Habomais and Shikotan, provided that a peace treaty was concluded. However, Japan has consistently insisted upon a reverse sequence of events. To the Japanese, the return of the islands must precede the conclusion of a peace treaty, and this return must include all four islands. In addition to subsequent debates over the issue, the U.S.-Japan Security Treaty of 1960 and the existence of foreign troops on Japanese soil furnished the Soviet Union with a convenient excuse to deny return of the islands. In view of the security risks perceived by the U.S.S.R., Japanese abrogation of the treaty was set forth as a prerequisite for return of the two islands. During the 1960's, the American military presence in Japan and control over Okinawa facilitated the Soviet refusal to negotiate any territorial concession.

Throughout the negotiations, the Soviet Union has sought reasons to close the issue and thereby maintain control over the disputed islands in view of their strategic and economic value. In addition to their salmon and crab fisheries value, these islands serve Soviet strategic interests by providing both submarine bases for Pacific operations and control over the Sea of Okhotsk by roughly completing the chain from Kamchatka to Sakhalin. However, the Japanese government has steadfastly refused to accept the Soviet position. A compromise on the territorial issue based upon the 1956 original proposition is theoretically possible depending upon its priority among other bargaining chips in these bilateral negotiations. However, the Soviet Government asserts that the territorial issue has long been settled by international agreement despite Japanese claims to the contrary.

Since 1972, the conclusion of a peace treaty has received a good deal of attention in bilateral discussions at the ministerial level. While the Japanese consider the two issues as inextricably connected, the Soviets attempt to separate the issue of a peace treaty from that of the disputed territory during the negotiations. Soviet Foreign Minister Andrei Gromyko's visit to Tokyo in January, 1972 indicated Soviet willingness to improve bilateral relations. At the end of this visit, it was announced that negotiations on a peace treaty would begin soon.

¹³ Kim, Young C. "Japanese-Soviet Relations: Interaction of Politics, Economics and National Security." Beverly Hills: Sage Publications, 1974. (The Washington Paper; v. 21) (A Sage Policy Paper) p. 19, 21.

In a follow-up visit in October of the same year, Japanese Foreign Minister Masayoshi Ohira met with Gromyko and Soviet Premier Aleksei Kosygin in Moscow to continue discussions in this area. Illustrative of this connection between the peace treaty and the territorial question, Moscow reportedly maintained that a possible transfer of the two smaller islands, Shikotan and Habomai, should suffice. Both sides agreed to continue negotiations. Two other significant events in 1972 complicated Soviet relations with Japan. The Sino-American and Sino-Japanese summit meetings toughened the Soviet attitude in view of its own lack of progress in bilateral relations with Japan.

A Soviet-Japanese summit meeting took place in October, 1973. The ministerial discussions in 1972 had laid the foundations for this Moscow meeting between Soviet Communist Party leader Leonid Brezhnev and Japanese Premier Kakuei Tanaka, the first such visit by a Japanese premier since 1956. Their discussions included the joint major development projects in Siberia, the Soviet proposal for collective security in Asia, and the conclusion of a peace treaty. No resolution of the peace treaty issue was achieved other than an agreement to continue discussions. The joint communique made no reference to the territorial question.

A discrepancy between the Russian and Japanese texts of the joint communique of October 10, 1973 caused diplomatic problems in connection with fishing relations. The agreement to continue negotiations on safe fishing in the disputed territorial waters was omitted in the Russian version. However, an exchange of diplomatic letters resulted in a Soviet acknowledgment of the error. The issue of safe fishing operations is inextricably connected to the territorial dispute, which heightens the dilemma faced by the Soviet Government. While, concessions in the way of improved fishing rights could strengthen bilateral fishing relations, they could also weaken the Soviet claim to the territory by recognition of Japanese rights in the area.

Mention was made of fishing relations in the "Joint Soviet-Japanese Statement" issued at the end of Tanaka's three-day visit:

The two sides held an exchange of opinions on ways of solving problems connected with fishing by the Soviet Union and Japan. As a result, the two sides, with a view to insuring long-term and stable commercial fishing in the Northern part of the Pacific Ocean, agreed to take appropriate steps, including the question of determining the size of the catch. The two sides reached a common opinion on the point that the appropriate ministers of the two countries should hold consultations on this question as soon as possible.

The two sides exchanged opinions on the talks, begun earlier, on commercial fishing by Japanese fishermen in areas on which the two sides will reach a separate agreement.¹⁴

Fishery talks followed shortly after the 1973 summit meeting in Moscow. The Japanese delegation had unsuccessfully demanded fishing rights for its fishermen near the Soviet-controlled islands claimed by Japan. Earlier in the year, Soviet Fisheries Minister A.A. Ishkov had asserted that the interests of the Japanese fishermen would be taken into consideration, but unlimited Japanese operations in the area would not be permitted. At this time, Ishkov sought Japanese

¹⁴ Japan's Tanaka Visits the U.S.S.R. Current Digest of the Soviet Press, v. 25, no. 41, p. 5.

acceptance of the proposal to allow Soviet patrol boats in waters near Hokkaido and off the Northeastern Honshu coast. However, this proposal was rejected on the grounds that the presence of those boats would facilitate the capture of Japanese fishermen for violation of Soviet territory. These fishery talks ended in a stalemate. No concessions by either side were made. However, both these discussions and the earlier summit meeting did result in one area of agreement: to continue negotiations on these problematic and crucial issues.

THE POLITICAL DIMENSION

Related political factors illustrate this interaction of Soviet national interest and oceans policy and its bearing upon the Soviet approach toward the fisheries issue. The realities of the situation tend to downplay the ideological differences between the Soviet Union and Japan and focus instead on the mutual economic interests. From another angle, Soviet fisheries activities, nevertheless, are subject to scrutiny by the less developed countries, whose cause the Soviet Union seeks to champion at the Law of the Sea Conference.

While the primary importance of the fishing industry to both countries cannot be denied, Japan is more vulnerable in view of Soviet control over its traditional fishing grounds and interference near its coastal waters. Here, the ideological differences surface in a different vein, as representatives of a private enterprise system encounter those of state socialism at the bargaining table. In the Soviet Union governmental control over the fishing industry simplifies the policy-making process and implementation. The Soviets thereby bargain from a position of strength in their discussions with the Japanese, who must coordinate diverse economic and political interests.

In another frame of reference, the ideological struggle with the People's Republic of China over control of the world communist movement adds further dimension to Soviet foreign policy. In this adversary relationship both sides attempt to weaken the other's position through unfavorable interpretations of events. In the Soviet-Japanese fisheries dispute, Peking supports the Japanese protest against large-scale Soviet operations near its coastline and its claim to the northern fisheries. On both an ideological and a purely political level, China has replaced the United States as the key complicating factor in the development of Soviet-Japanese relations.

The changing power configuration in Asia has influenced the development of Soviet-Japanese relations with respect to the interplay of Chinese and American interests. The atmosphere of detente as evidenced by the Sino-American rapprochement has altered the balance of power. This Sino-Soviet rivalry for power in Asia is one motive behind the development of Soviet-Japanese and Sino-Japanese relations. In this regard, the Soviet approach toward fishery relations with Japan assumes a political connotation.

The triumph of communist forces in Indochina coupled with a substantial decrease in the American presence has provided new ground for the Sino-Soviet competition. Yet, the emergence of Japan as a major global power has projected this nation into an influential position in Asia, which cannot be disregarded by the Soviets and the Chinese. Both the Soviet Union and China are seeking Japanese sup-

port for their Asian power schemes. The Soviet Union has proposed an Asian collective security system, which would both weaken American influence and secure a position for the Soviet Union in Asian affairs. This Soviet effort based upon strategic concerns has been countered by a clause in the proposed Sino-Japanese peace and friendship treaty. Condemned by the Soviet Union, this clause inserted by Peking is directed against "hegemony in Asia of a third power" in fairly obvious reference to the Soviet Union. In this aspect, China has gained a diplomatic advantage over the Soviet Union. Japan will not consider the possibility of a treaty with the Soviet Union until the territorial dispute is settled in its favor. The Soviet Union has warned Japan about the detrimental effect the proposed Sino-Japanese treaty would have upon Soviet-Japanese relations. However, Soviet concessions in the fisheries issue could serve as a means to gain Japanese support against Peking and perhaps deflect some attention away from the problematic territorial issue.

PROSPECTS AND ISSUE

This case study of the Soviet-Japanese fisheries issue has been presented in an attempt to show Soviet oceans policy in action. A movement toward cooperation is discernible in the development of bilateral fishing relations since 1956. The fisheries negotiations provide a bilateral forum for discussion of related activities and ocean policy. The stature of the Soviet Union and Japan as major fishing powers and their geographic proximity heightens the intensity of competition in their relationship. The expansion of fishing activities by both countries and consequent depletion of resources necessitate some form of cooperation in order to avoid conflict. As one manifestation of oceans policy, fishery activities reflect the interplay of political and economic interests together with environmental concerns.

However, certain fundamental problems continue to aggravate fishing relations and thus bilateral relations in general. The territorial dispute referred to by the Japanese as the "Northern Territories" issue, will remain unresolved for some time in view of its significance for both sides on many different levels. This lack of resolution precludes the conclusion of the elusive peace treaty, at least according to the Japanese. The Soviets, however, persist in their efforts to conclude the treaty first. Disagreement on this level carries over into the realm of fishing activities. The return of the Japanese to their traditional fishing grounds has often resulted in encounters with Soviet authorities on charges of violating Soviet territory. Both at home and through diplomatic channels, the Japanese continue to protest vehemently the often harsh treatment of their fishermen. At the same time, Soviet occupation of the southern Kurile Islands permits their use for strategic and economic purposes, thereby gaining greater access to the sea.

The issue of safe fishing operations has been raised by the Japanese in two different locations: the high seas near their coastline and the waters near the disputed islands. While the 1975 agreement pertains to the first area, Japanese fishing in the second is complicated by the sensitive territorial issue and therefore not subject to an easy solution. Japanese operations in this area and in crab fishing on the

Soviet continental shelf offer leverage to the Soviet Union due to their control over these areas, thus facilitating gestures of "good-neighborship" on the part of the Soviets. The initial approach to a solution of the problem has been procedural, rather than substantive, in nature. Yet, this recent agreement at least lays the foundation upon which further negotiations could build. The establishment of claims settlement commissions provides yet another forum for discussion of fisheries problems and the exchange of information. The conduct of bilateral fishing relations does affect the development of bilateral relations in general.

As initiated by the Soviets in 1956, the concept of joint fisheries regulations has limited the uncontrolled expansion of fishing operations in the Northwest Pacific. The duration of the annual negotiations conducted by the Soviet-Japanese Fisheries Commission depends upon the degree of rigidity in the bargaining stance of each party shaped by political and economic factors. While the focus is on the salmon, herring, and crab resources in these waters, the territorial dispute and the issue of safe fishing operations, in the setting of the Asian power configuration undoubtedly influence the outcome of the annual fisheries talks. At the same time, the reduction in harvest quotas and the establishment of joint breeding projects illustrate a recognized concern over the conservation of resources and the concomitant need to increase the supply. The annual meetings of this regulatory body and the ministerial conferences have contributed to the development of bilateral fisheries relations.

On balance, the Soviet Union appears to have an advantage over Japan in the fisheries issue in that it can limit access to traditional Japanese fishing grounds. Secondly, a large-scale Soviet fishing operation just beyond the 3-mile Japanese territorial sea has been at the expense of the Japanese fisherman. Competition in these waters has resulted inevitably in gear conflict, thus raising the issue of safe fishing operations. However, the possible extension of Japanese coastal waters to a 12-mile limit could diminish the potential for conflict by affording its nationals a greater expanse of the sea, thus placing the Soviets at a greater distance. Also, Peking's support of Japan may strengthen the latter's position vis-a-vis the Soviet Union by adjusting the power alignment. Nonetheless, as past experience has shown, the Soviet Union will continue to exert a dominant influence in bilateral fishing relations at least in the immediate future.

As stated at the beginning, an analysis of the Soviet-Japanese fisheries issue cannot be separated from the broader spectrum of general political and economic relations. Since 1956, the development of bilateral relations has strongly influenced the progress of the fisheries issue and vice versa. Improvements in the fisheries relationship have contributed to the advancement of bilateral relations in general. The development of bilateral fishing relations has witnessed some degree of progress and has provided a basis of mutual understanding. The problems have been recognized. It remains to be seen whether the problematic issues will continue to strain bilateral relations or whether improvements in the general atmosphere will promote their resolution. However, joint efforts have achieved a degree of cooperation in maritime matters in a movement away from conflict. And, the continuation of fisheries negotiations on various levels illustrates the in-

terest of both sides in working together in this area, thus reflecting an increasing awareness of the value of the ocean and its resources.

THE SPITZBERGEN CONTROVERSY: A CASE STUDY

(By Carl Jacobsen¹)

GEOPOLITICAL SENSITIVITIES, AND CONSEQUENT SECURITY PREROGATIVES

Sovereignty over the Svalbard/Spitzbergen archipelago has long been a subject of extreme concern and sensitivity to Soviet security organs. Towards the end of the Second World War, in a discussion with then Norwegian Foreign Minister Trygve Lie, Molotov presented a succinct synopsis of Russian anxieties. His words serve to indicate the enduring character of Moscow's concern. They followed Norway's refusal to a Soviet demand that she give up her suzerainty over Svalbard and Bear Island (the former was to be put under a joint Norwegian-Soviet administration which was to act "as a condominium", the latter was to be transferred outright), and were frank and to the point:

" . . . the Dardanelles . . . here we are locked in . . . Oresund . . . here we are locked in. Only in the North is there an opening, but this war has shown that the supply line to Northern Russia can be cut or interfered with. This shall not be repeated in the future. We have invested much in this part of the Soviet Union, and it is so important for the entire Union's existence that We shall in future ensure that Northern Russia is permitted to live in security and peace".²

Molotov acknowledged that the Norwegians were friendly neighbors, but persisted: "shall we settle this in a friendly manner, or shall there be a dispute?"³ Admiral Golovko summed up: "Without the Kola inlet the Northern fleet cannot exist . . . the Kola inlet is necessary to the state."⁴

The dynamic post-war expansion of Kola base facilities and the introduction and buildup of strategic naval forces underlined the significance of the area. The basis for the abiding Soviet concern is clearly to be found in the field of security. Her acute sensitivity reflects strategic realities. Defense activation procedures entail certain time requirements vis a vis incoming strikes;⁵ while offensive prospects must be secured against such countermeasures as might jeopardize their employment (one thinks i.e. of the at present legally defunct but nevertheless technologically attractive potential of Polaris/Poseidon based BMD's proximate enough to intercept during ICBMs' vulnerable ascent phase).⁶ Moscow could not accept active hostile utilization of adjacent lands and water.⁷

¹ The author is a Professor of International Relations at Carlton University, Canada.

² V. Molotov, as quoted by Trygve Lie in "Hjemover," Tiden Norsk Forlag, Oslo, 1958.

³ Ibid.

⁴ A. Golovko, "With the Red Fleet. The War Memoirs of Admiral Golovko," Pitman, London, p. 40, (first published by Voenizdat, Moscow, 1960).

⁵ See e.g. "International Affairs," Moscow, No. 12, 1969.

⁶ For elaboration see C. G. Jacobsen, "Soviet Strategy-Soviet Foreign Policy," Ch. 6, The University Press, Glasgow, 2nd ed. 1974 upon which this section is based.

⁷ Ibid., and see footnote 5.

Norway has consistently acknowledged the legitimacy of this position, by refusing to permit the stationing of offensive missiles on her soil, by vetoing NATO exercises within about 300 km of the border, and by insisting that she has not and will not permit the peacetime utilization by Polaris submarines of Norwegian radar facilities.⁸ The Norwegians clearly conduct some tactical electronic and other surveillance of Soviet developments in the area. The fact that the Western coast of the Ribachi Peninsula is within visual, naked eye, surveillance distance from the border⁹ makes this inevitable. But this limited intelligence-seeking can be tolerated by the U.S.S.R. It is surveillance integrated into hostile strategic systems that could not be tolerated. Any act or tendency which promised such integration would clearly tread on very sensitive Soviet corns.¹⁰

This is evidenced by articles like the one carried by *Krasnaya Zvezda* in the spring of 1969:¹¹ it forcefully condemned alleged radio and radar communications between Northern Norwegian installations and U.S. nuclear submarines on patrol in Northern Waters. . . . There appeared little reason to doubt the Norwegian assurances that the charge was mistaken. The Soviet Union must furthermore have known it to be inaccurate. She presumably had means of verification. One must infer that the Soviet allegation mirrored not belief, but rather fear regarding potential activities. It belonged to the realm of declaratory policy, a warning of the unacceptability of any such communication.

If Soviet statements have been correctly interpreted then it would be logical to conclude that the referred-to type of intelligence integration would not only be theoretically unacceptable, but would provoke countering actions. A Norwegian departure from her tacit concessions to Kola security requirements would likely constitute an invitation to "a Cuba in reverse"; Kola security demands are so essential that Moscow could be expected to accept the risks associated with intervention.¹²

The astounding Soviet buildup of strategic and maritime facilities in the north at one time stirred western fears for northern Norway's fiords.¹³ This concern now appears less acute. Nuclear and other developments shrank the expected burgeoning of Soviet naval base requirements; the long range character of emerging fishing and merchant fleets similarly defused the expansionary base requirements of her Civilian fleets. It is clear that Kola base prospects have not been exhausted. A cursory glance at relevant maps furthermore sug-

⁸ See i.e. Norw. Min. of Defence G. Harlem in "Parliamentary Debates" (Stortingsforhandlinger), 1964-65, Vol. 7, pg. 2475.

⁹ See map "The Kola Coastline, from Nordkapp to Mys Kanin Nos including the White Sea," Admiralty, London, 1958.

¹⁰ International Affairs, No. 12, 1969, op. cit.

¹¹ *Krasnaya Zvezda*, March 30, 1969.

¹² NATO-aligned communications and early warning systems, NATO manouvers as previously conducted and the preparation of bases to permit wartime reinforcement of men and equipment (described by A. Singleton in NATO Defensive Installations in Norway, "NATO Letter," Jan. 1966) certainly represent cause for Soviet anxiety. But such NATO activity can be and has been, tolerated and accepted. It does not infringe on essential Kola security requirements in the way that the described potential radar utilization would.

¹³ See Swedish M. o D.'s "Sveriges Sakerhetspolitik," Stockholm, 1955, or i.e. Capt. Araldsen, The Soviet Union and the Arctic, U.S. Naval Institute Proceedings, June 1967.

gests that they are unlikely to be exhausted.¹⁴ The notion of physical Soviet need for Norwegian space is not tenable. And the associated spectre of Soviet strategic need is no more viable: the offensive beneficence of a westward movement of her base complexes was always logically offset by the defensive advantages of status quo—so long as the practical neutrality of the intervening territory remained unquestioned. The Soviet strategic need, or imperative, as regards Northern Norway lies in its exclusion from active participation in hostile strategic designs.¹⁵

By the late 1960's basic Soviet security requirements appeared to have been met. The failure to acquire Svalbard and Bear Island facilities was compensated for by the establishment of military bases (and radar installations) on ice floes in the Barents and White Seas, and on Franz Josef's Island.¹⁶ Electronically equipped surface vessels and the presumed employment and integration of ocean floor monitoring devices¹⁷ further supplemented early warning capabilities. Finally, the establishment of such a North Sea naval presence as promised effectively to isolate Norway behind (e.g. East of) potential front lines¹⁸ secured against a possible future Norwegian abnegation of self-restraint.

The early 1970's however, brought new anxieties. On the one hand technology had outstripped reigning International Law. The Geneva Convention of 1958 had stipulated coastal states' authority to extend to depths of 200 meters, or such depths as to which exploitation was feasible. But whereas 200 meters had originally been thought the limit of technological feasibility, 1970 technology promised oil drilling at depths of 400 meters, and ocean bed mineral extraction at depths down to 1,500 meters;¹⁹ and all bets were off regarding future potentials. The early 1970's thus saw the entire ocean floor between Northern Norway and Svalbard placed in the "exploitable" rubric. And while the logic of the Geneva text, and of Norway's 1963 assertion of sovereignty over her continental shelf²⁰ was unequivocal, the continued absence of a more realistic International Law consensus on the outer limits of coastal states' rights did inject an element of uncertainty. The element was all the more disturbing in view of the discovery that the geological structure of the shelf between Norway and Svalbard was extremely favourable to oil and gas prospects.²¹ The spectre of a multinational scramble to install rigs in the area, a spectre of some urgency following the oil crisis

¹⁴ See Maps "The Kola Coastline, from Nordkapp to Mys Kanin Nos", op. cit., and Barents Sea Depths in Carte General Bathymetrique des Oceans, Carleton University Geography Map Library 9200 Acc. 1487; See also Jan Klenberg's "The Cap and the Straits." Occasional Papers in International Affairs, No. 17, Harvard University, 1968.

¹⁵ "Soviet Strategy", op. cit.

¹⁶ T. J. Laforest, "The Strategic Significance of the North Sea Route," U.S. Naval Institute Proceedings, Dec. 1967.

¹⁷ Jens Evensen, Norwegian Ministry of Foreign Affairs, "Present Military Users of the Seabed: Foreseeable Developments," Document presented to symposium on the International Regime of the Sea-bed, Rome, July 1969.

¹⁸ See e.g. charts presented in "NATO Letter," Sept. 1970, pp. 6-11.

¹⁹ Norwegian Ministry of Industry's "Oversikt over Oljepolitiske Spoersmaal" (auth. Jens Evensen), 1971.

²⁰ See e.g. Norwegian Ministry of Finance's Parliamentary Report, No. 25 (1973-74), titled "Petroleum Industry in Norwegian Society."

²¹ Norwegian Petroleum sources; or see i.e. Sea Power. Nov. 1974: "Official Norwegian Reports indicate an opulent future . . . seismic investigation has shown a succession of oil-bearing anticlines as far north as Bear Island, deep in the Arctic Circle, and possessing fields even richer, possibly than those in the North Sea".

subsequent to the 1973 Mideast War, spurred emphatic Norwegian reassertions of sovereignty,²² and Norwegian-Soviet negotiations.²³

The security implications of a forest of rigs in the area was a nightmare to Moscow; knowledge thereof was a nightmare to Oslo.²⁴

But before delving further into the legal status of the Svalbard archipelago and the Norwegian shelf, and into ongoing negotiations, some further note must here be paid to the geopolitical peculiarities of the situation; the more so since these exacerbate the sensitivity of the area.

Svalbard is not only sensitive because of its proximity to Kola. What makes its status of vital concern to Moscow is its command of the northern shore of the mouth of that natural ice-bounded fiord through which Kola based vessels must pass on their way to and from Western Seas. The ice limit goes south from Spitzbergen to about Bear Island, then arches eastward until finding its continental anchor at Mys Svjatoi Nos.²⁵ Northern Norway and North Western Kola form the southern shore of the "artificial" fiord, with the distance from the Norwegian border to the ice limit being 240 n. miles—not counting the smaller fiord leading into Murmansk and the numerous bays.²⁶ The integration of Svalbard and/or Northern Norway into active anti-Soviet military activities would obviously be intolerable. They control not one approach but the only approach to Kola.

The minimum demand of Soviet and in earlier year Russian policy has therefore always revolved around effective Svalbard neutrality. It is symptomatic that even the chaos and civil war embroiling the early revolutionary regime did not suffice to drown the concern: the 1918 Brest-Litovsk Treaty between the still young government of Lenin and that other outcast, defeated Germany, contained a clause demanding equal rights on the archipelago. And although Moscow finally acceded to the Svalbard Treaty of 1920²⁷ which allowed for Norwegian suzerainty return for demilitarization and equal exploitation rights for all signatories' subjects, in February of 1924,²⁸ she remained a jealous guardian of the conditional clauses. Concern as to German wartime activities sparked the above mentioned Molotov initiative, as well as a followup initiative aimed at making the U.S.S.R. co-responsible for Svalbard's defence (this demand was only refused by the Norwegian Storting in January of 1947, as a biproduct of emerging Cold War).²⁹ And similar concern arising from Oslo's 1949 adherence

²² Note i.e. Norwegian Ministry of Industry's Oversikt over Oljepolitiske Spøersmaal, (auth. Jens Evensen), op. cit.

²³ Preliminary negotiations were initiated in Sept. 1970. For Soviet "progress reports" see i.e. Pravda Dec. 8, 1971, Pravda March 26, 1974, . . . etc.

²⁴ Moscow's concern is only heightened by reports such as carried by Aviation Week and Space Technology, Nov. 25, 1974: "Defence of North Sea drilling rigs and future automated production facilities has become a priority item in NATO planning—"; Norwegian measures to assuage that concern are treated elsewhere in the text; suffice it to note the insistence with which she returns to the theme in every treatment of continental shelf exploitation problems as evinced i.e. in the Norwegian government sources quoted above, as well as in reports such as carried by "Sea Power," op. cit.

²⁵ Map of the Kola coastline, op. cit., and see e.g. "Sailing Directions for Northern U.S.S.R.", Hydrographic Office Publication No. 47, Vol. 1, G.P.O., 1954, and H.O. Publ. No. 550, G.P.O., 1955

²⁶ Ibid.

²⁷ For an excellent presentation and analysis of Treaty background, participants and clauses, see W. Oestrenge, *Oekonomi og Politisk Suverenitet*, Universitetsforlaget, Oslo, 1974; see also F. Sollié, "Arctic and Antarctic—Current Problems in the Polar Regions", *Cooperation and Conflict*, No. 2, 1969.

²⁸ T. Greve, *Svalbard*, Groendahl, Oslo, 1975

²⁹ Ibid.

to NATO was only defused by Norway's late 1951 assurances that the action did not affect the provisions of the 1920 Treaty.³⁰ Continued sensitivity was manifest when Norway began constructing an airfield in the early 1970's (Norwegian reassurance of non-military intent was here to be supported by the agreed stationing at the field of a Russian contingent, to service Soviet planes and helicopters), and when Moscow demurred as regards the July 1971 Norwegian imposed petroleum exploration regulations.³¹

SVALBARD'S LEGAL STATUS

The current status of international law concerning Svalbard and the surrounding waters and ocean beds is best approached from the vantage point of Norwegian interpretation, partly because her basis suzerainty is not questioned, partly because she commands a consensus on most points at issue:³²

"The point of departure must be paragraph 1 of the Svalbard Treaty. According to this all signatories recognize Norway's full and absolute sovereignty over the Spitzbergen archipelago's article 2 of the treaty stipulates certain concrete restrictions to this sovereignty. But it is clear from the treaty that these special restrictions are specifically enumerated. Outside of these restrictions article one's main principle operates without limitations.

"As will be shown, the Svalbard Treaty does not affect the Continental Shelf. The same comment applies to the sovereignty restrictions that are specifically enumerated in the Svalbard Treaty.

"According to the Svalbard Treaty's article 2 all contracting parties' subjects have equal rights to hunting and fishing 'within those areas mentioned in article 1 and their territorial waters'. That is, article 2 clearly and unequivocally asserts that it concerns not only the land areas mentioned in article 1 but also the territorial waters surrounding the islands.

"It is likewise stipulated in article 3 that all Treaty members' subjects shall have equal opportunity to conduct any maritime, industrial, mining and trade activity 'both on land and in the territorial waters'. Again, this means on islands, large and small skerries, and the territorial sea.

"The equal rights principle the Treaty prescribes in articles 2-3 applies according to its wording only to Svalbard's land territory and Svalbard's territorial waters. As concerns these specific areas there are certain concrete restrictions to the Norwegian exercise of sovereignty. Beyond these specially enumerated instances and certain other exceptions expressly mentioned in the Treaty, article one's main principle operates without restrictions.

"... when articles 2-3 of the Svalbard Treaty also refer to territorial waters, and not just 'land area', then this is due

³⁰ Ibid.

³¹ Ibid.

See also "Report No. 39 to the Norwegian Storting (1974-75)," Concerning Svalbard, *Pravda/Izvestia*, March 26, 1974 (re. airfield agreement), and *Washington Post*, Sept. 20, 1975 (re. same).

³² As regards the consensus, one might point i.e. to the following comment from "Sea Power", *Op. Cit.*: "the Norwegian Sea above 62N to its juncture with the Barents Sea—which Norway shares with the Soviet Union—is Norway's property clear to Spitzbergen."

to the fact that both articles cover 'fishing and maritime activities'. Territorial waters is not mentioned in the Svalbard treaty's articles 7, 8, which deal specifically with "Ownership" and "Mining."

"It follows that the Norwegian Continental Shelf is clearly not affected by the Svalbard Treaty's decisions. This interpretation is reinforced by other Treaty clauses.

"Thus article 7 decrees that as regards the acquisition and exploitation of ownership rights, herein included mining rights, Norway commits herself to accord equal treatment to Treaty partners' subjects, but only for those areas mentioned in the Treaty's article 1. The Treaty's article 1 is explicitly limited to the Svalbard archipelago's land areas, that is to islands and large and small skerries. The equal rights clause of article 7 ought therefore in principle not even to apply to territorial waters.

"Article 8 provides further support for this interpretation in that this article commits Norway to establish mining regulations for areas mentioned in article 1, which again in principle means the land areas of Svalbard.

"... Paragraph 1 of the mining regulations (enacted in August of 1925) refers only to islands and large and small skerries. Paragraph 9 contains clauses regarding claim demarcations which demonstrate that they focus on land areas. Claims must be demarcated with markers in hard rock or through other lasting means ... in the field ...³³

"(Anyway) ... the continental shelf in the area off Troms/Finmark and Svalbard—constitutes a natural extension of the land masses of the Norwegian mainland. Under Norwegian and international law, based on the exploitation criteria, Norway therefore has sovereign rights over these areas, regardless of the Svalbard Treaty.³⁴

Norway's position was thus to preempt speculation, by foreclosing debate on the continental shelf, and by presenting such a strict definition of Svalbard Treaty clauses as would also reserve onto herself petroleum and mineral extraction rights in Svalbard territorial waters. However, what appeared to be a backup bargaining position as regards the territorial waters issue was noted at the same time. It deserves quoting as a weather vane of ultimate Norwegian negotiating flexibility; as reflecting the more conciliatory range of Oslo's perception of possible negotiating parameters:

"Article 2 of the Treaty mentions measures for protecting the natural environment of the island group ... Under the exercise of their legislative and administrative authority, the Norwegian authorities are obligated to undertake the balancing involved here.³⁵

Initial Soviet reaction to all three stances was cool.³⁶ As a growing maritime power she was loathe to countenance the freedom of the seas implications of vague extensions of ocean states' jurisdiction; as an established actor on the Svalbard scene she was loath to accept

³³ Norwegian Ministry of Industry's "Oversikt over Oljepolitiske Spøersmaal", 1971, op. cit.

³⁴ Norwegian Ministry of Finance's "Parliamentary Report No. 25 (1973-74)", op. cit.

³⁵ Ibid. One might note that this "fall-back position" is receiving somewhat more prominent treatment in recent Norwegian government documents; see i.e. "Report No. 39," op. cit. (in this, the "hard-line" position is implicit in certain sections, but never made explicit).

³⁶ Norwegian Foreign Ministry sources.

regulations of possible restricting import. Finally, she may have been loathe to make concessions regarding Svalbard proper at a time of ongoing negotiations to delineate the boundary between Norwegian and Soviet continental shelves.

SVALBARD AS A FOCUS FOR LAW OF THE SEA AND SECTOR PRINCIPLE DELIBERATIONS

Soviet opposition to Norway's assertion of continental shelf sovereignty jarred with her own traditional espousal of the sector principle, and its corollary of Soviet suzerainty over that part of the Arctic Ocean bounded by the longitudinal extremities of the Union's Northern territories (with an eastward indentation between the Svalbard archipelago's southern and northern latitudinal limits, drawn along the longitudinal median between Svalbard and Franz Josef's land).³⁷ The Soviet stance conformed to her general antipathy towards the early 1970's somewhat anarchic proliferation of unilaterally promulgated coastal states' assertions of ocean sovereignty claims. And it may as previously indicated be seen to reflect the natural concerns of free passage of what had become one of the world's major maritime powers.

But the Soviet position softened appreciably during the first half of the 1970's. In part this was no doubt due to her realization that the mushrooming trend to extend coastal states' ocean and ocean floor exploitation rights could be seen to complement and indirectly sanctify her view of the sector principle. One might point to the fact that the southern reaches of the Arctic Ocean, the Barents, Kara, Laptev, and East Siberian Seas, are extraordinarily shallow; the ocean floors here involved are all within relatively easily exploitable depths.³⁸

Another motive for Soviet flexibility might be inferred from a presumed reluctance to jeopardize her self-espoused role as protector of third world interests; most of the more assertive coastal right's nations were counted among those otherwise less privileged.

There emerged a careful differentiation of the rights of free passage and the rights of exploitation. As regards the former, Moscow's firmly stated complementarity of interests with Washington, London, and other maritime powers appeared likely to ensure the perpetuation of traditional concepts. As regards the rights of exploitation, evolving Soviet attitudes tended more and more to complement the aspirations of third world nations. The U.S.S.R. insisted on a 12-mile limit to territorial waters, but proceeded to suggest that continental shelf rights extend to whichever was greater, the 500 meter isobath or 100 nautical miles beyond the baselines from which territorial seas were measured.³⁹ Moscow's position was moving towards acceptance of the (1971) tenet that:

"In view of the practice chosen by a number of Latin American states and other developing nations, it is . . . politically unrealistic to believe that a distance of less than 200 nautical miles off shore would be acceptable as a criterium of international law.

³⁷ Traditional Soviet views on the sector principle, as well as the rather unique Soviet definitions of "historic bays", may be found i.e. in Z. Meshera, "Morskoe Pravo: Pravovoi Rezhim Morskikh Putei" ("Maritime Law: Legal Regime of Maritime Routes"), Moscow, 1959.

³⁸ See i.e. The Times Atlas, London 1972, or any of the more detailed bathymetric charts currently available.

³⁹ Janis and Daniel, "The U.S.S.R.: Ocean Use and Ocean Law", Occasional Paper No. 21, Law of the Sea Institute, U.R.I., May 1974.

The alternative depth criterium might be suggested to be 500 or 1,000 meters."⁴⁰

By 1975, 4 years, two relatively unsuccessful Law of the Sea Conferences (Caracas and Geneva), and a further proliferation of unilateral claims later, it appeared clear that nothing less than the outer limits suggested in the above quote would prove acceptable. Law of the Sea consensus was moving towards 200 n. miles and/or 1,000 meter isobath coastal states' reserve exploitation zones;⁴¹ with at least some kind of "common heritage of mankind" stipulation to cover exploitation of unaffected ocean areas.

The developments promised considerable benefice to Moscow. Her fleet movements, naval and civilian, would remain basically unfettered. On the other hand, as regards ocean floor exploitation, she secured for herself a disproportionately vast expanse of geologically highly promising real estate.⁴² And it was surely not lost on her that the trend would, conversely, serve to restrict the less fortunately endowed U.S. access to noncontiguous shelf riches. By restricting the "common heritage of mankind" acreage to more dramatic depths she might furthermore effectively retard the United States' ability to draw maximum benefit from residual American deep-sea mining technological superiority, while she herself pursued her currently highly impressive priority research efforts.⁴³ As regards nonmining exploitation of deep sea resources, the U.S.S.R. was of course already in a highly favorable position, as a result of the dramatic quantitative and qualitative expansion of her fishing fleets that she had effected through the previous decade.⁴⁴

But while international law on ocean floor exploitation rights was tending both to buttress Soviet Northern policy, and to reserve for Norway the sensitive depths between her northern counties and Svalbard, there remained the uncertainties of continuing delimitation differences. There remained substantial discrepancies between the delimitation suggested by the Soviet-championed sector principle, and that suggested by the Norwegian-adhered-to 1958 Geneva Convention clause on the median line principle.⁴⁵

Preliminary negotiations were initiated in 1970, a fact which in itself could be taken to reflect a degree of flexibility on the part of Moscow. At least the question was not foreclosed. Settlement had still not been achieved by 1975. But negotiations were proceeding, and Norwegian sources were acknowledging a new Soviet willingness to at least concede Norway's basic position on the northern shelf

⁴⁰ Translated from Norwegian Ministry of Industry's "Oversikt over Oljepolitiske Spoersmaal", op. cit.; and note the subsequent joint Norwegian-Australian initiative to the Caracas Law of the Sea Conference.

⁴¹ It is illustrative to contrast the restrictive U.S. initiative to the Aug. 1970 Geneva Ocean Floor Committee session with current (1975) Congressional initiatives.

⁴² Note above comments on the geologically similar Northern Norwegian continental shelf, (footnote 20); see also Ocean Oil Weekly Report, Vol. 9 No. 10, Dec. 1974; and i.e. Vinogradov's "Ocean in the Year 2000", Novosti 201H4922/B (from Vodni Transport).

⁴³ See quotes in Chapter 2 of C.G. Jacobsen, Notes on Military-Civilian Integration in the U.S.S.R.: A Case Study: The "Civilian" Fleets, as yet unpublished report commissioned by Queen's University Dept. of Political Studies, April 1975.

⁴⁴ Ibid.

⁴⁵ See i.e. Arvid Pardo's treatment, in Foreign Affairs, October 1968.

Note: The difference between the "med line" which the U.N. Convention prescribes, for situations not affected by "special conditions" favouring alternate principles and the "sector principle" long espoused by Moscow, and now portrayed as such a "special condition" common law equivalent, amounts to 155,000 square kilometers.

issue (as a practical corollary of the above treated evolving Soviet position on the larger Law of the Sea issue), as well as Norway's interpretation of the import of the Svalbard Treaty.⁴⁶

The degree of Soviet flexibility thus evinced stems, as previously indicated, from a number of considerations. First and foremost among these is that of security. With the spectre of a multinational oil and gas scramble in the area being well nigh intolerable from a security viewpoint, Moscow was clearly finding it preferable to concede to and support Norwegian claims. The promised perpetuation and extension of the now traditional *de facto* military quasi-neutrality of Denmark, was far preferable to any conceived alternative. And it was surely the paramount, crucial nature of this concern which induced also Soviet flexibility on the delimitation issue; —just as the converse Norwegian willingness to compromise as evinced through her presence at the negotiating table, surely demonstrated Norwegian recognition of the fact that too great an exacerbation of tensions in the area could prove dangerously counterproductive. Moscow could find relative comfort in the low risk promise of Norwegian control as presently envisaged.⁴⁷ If such a solution proved infeasible, however, then geo-political realities would clearly dictate consideration of higher risk alternatives.

But there is also one other factor that might be presumed to have been present in Soviet calculations. As demonstrated by the 1975 Norwegian development of the gigantic, revolutionary concrete drilling platform "Condeep", Norway has emerged in the forefront of world ocean drilling technology. She has become an alternative source of the most advanced deep sea oil and gas extractions technology. It is not too farfetched to envisage a negotiated control delimitation agreement whereby at least some further Soviet concessions were forthcoming in return for access to that technology.⁴⁸ Or else, in lieu of an exact demarcation settlement, one might perhaps envisage Moscow-conceded Norwegian extraction rights throughout the area in dispute, in return for Soviet access either to technology or to profits.

Yet, finally, one must return to the point that the fulcrum for all Soviet policy initiatives in the area lies in the Kola base complexes; and that the character of these initiatives are determined by the geopolitical realities and constraints of the Kola Peninsula. Geopolitical facts dictated the development of Kola as the most vital core area of expanding Soviet Naval and Civilian Fleets. Geopolitical facts dictated these fleets' dependence on unimpeded passage through the Norway-Bear Island gap.⁴⁹

⁴⁶ This information was conveyed by Norwegian Foreign Ministry officials to interested allied parties in the spring and summer of 1975.

⁴⁷ Norway has designated that her State Petroleum Directorate be "responsible, together with Statoil (the State Oil Co.), for ALL activities connected with petroleum operations on the shelf, including those in the Svalbard area" (from Report No. 39, *op. cit.*; this author's explanatory bracket, and emphasis). As of early 1976 she continues to limit drilling to areas south of 62 degrees N., and insists that even in these more southerly reaches production must be curbed, and carefully controlled (See i.e. The New York Times, Sept. 28, 1975).

⁴⁸ Note references to Scientific-technical co-operation in i.e. Pravda, Dec. 8, 1971, *op. cit.*, and "Report No. 39 (1974-75)", *op. cit.*, esp. Chapter VII, Sections 3 and 4.

⁴⁹ C. G. Jacobsen, "Soviet Strategy . . .", Ch. 6, *op. cit.*

The Sept. 11, 1975 Tass announcement (see Pravda, Sept. 12) that missile tests would be conducted in the area, within a radius of 40 nautical miles from a center point at 73 degrees N. 35 degrees E, may be seen as a rather unambiguous signal of abiding Soviet concern and determination. The test range overlapped with demarcation-disputed territory (see also footnote 44).

Moscow could no more tolerate hostile control over that gap than she could tolerate hostile control over the mountain ranges of Western Czechoslovakia (east of which the plains stretch flat, if marshy to Moscow). If she considered Svalbard sensitive enough to warrant thoughts of intervention in November of 1944, then there can be no doubt that its much increased strategic value today would be seen to justify and indeed demand intervention in the event of its future hostile utilization.⁵⁰

⁵⁰ If anything, the evolution towards home water basing of SSBNs, which the introduction of the long range SS-N-8 missiles appear to augur, would further increase the crucial sensitivity of the area in the eyes of Soviet planners.

See also Jan Ingebrigtsen's "En studie av Norskehavets Strategiske Betydning som funksjon av Sovjetunionens Nordflaates Operasjoner", NUPI Rapport, N.U.P.I., Oslo, August 1975.

SOVIET SHIPPING STRENGTH AND ITS EMPLOYMENT

(By William Carr)

SUMMARY

The Soviet merchant fleet achieved its most spectacular growth from 1962 to 1966. This expansion, stimulated by increases in seaborne trade at annual rates averaging more than 30 percent for 3 years in a row, raised the fleet's world standing from 12th largest in 1962 to 7th largest in 1964. Accelerated deliveries to other countries' fleets dropped the Soviet fleet's standing from 7th largest in 1973 to 10th largest in 1974. The fleet's capacity at the end of 1974 was 14.2 million deadweight tons (dwt), 3 percent of the world total and less than one-fourth that of the world-leading Japanese fleet.

Although 65 percent of Soviet merchant tonnage is less than 10 years old, a number of long-standing qualitative deficiencies place the Soviet fleet behind Western fleets in maritime technology. Because of draft limitations in U.S.S.R. ports, the average size of Soviet merchant ships is less than half the world average. Moreover, the Soviets have just begun to acquire tankers and bulk carriers larger than 50,000 dwt, small by Western standards. At a time when the movement of general cargo in scheduled liner service on major routes like the North Atlantic and the North Pacific is dominated by containerships, roll-on/roll-off vessels, and other craft that carry cargo in modular units to minimize time in port, the U.S.S.R. still relies heavily on conventional general-purpose dry cargo ships on which general cargo is loaded piece by piece. Although the new Five Year Plan addresses these deficiencies, the Soviet fleet still has a large qualitative gap to close in catching up with Western maritime powers in the liner field.

THE EMERGENCE OF THE U.S.S.R. AS A SHIPPING POWER

The Soviet Union emerged as a world shipping power in the early 1960's. An intensive program of ship acquisitions—which peaked in 1964 when 1.3 million dwt were acquired—caused fleet capacity to more than double from 4.2 million dwt at the end of 1961 to 8.9 million dwt at the end of 1966 (see table 1). In an even shorter period—1962 to 1964—the addition of nearly 3 million dwt raised the world standing of the Soviet merchant fleet from 12th to 7th largest. This rank held until 1974.

Unprecedented growth in Soviet seaborne foreign trade during 1959–61 was the chief cause of the accelerated expansion of the Soviet fleet. Increases in oil exports—which represent about half of total trade—caused trade to expand at rates greater than 28 percent a year for 3 years in a row during this period (see table 2). With fleet growth lagging behind trade growth, the share of total Soviet

seaborne foreign trade carried in Soviet ships dropped from 55 percent in 1959 to 37 percent in 1961 and 1962.

THE CURRENT SIZE AND STANDING OF THE SOVIET MERCHANT FLEET

Ship deliveries of 900,000 deadweight tons (dwt) in 1974 brought the size of the U.S.S.R. merchant fleet to 1,590 vessels totaling 14.2 million dwt at the end of the year, 3 percent of world tonnage. However, additions to the Panamanian, French, and Italian fleets were greater, dropping the Soviet fleet from seventh to tenth largest in the world. At no time has the Soviet fleet accounted for more than 4 percent of world merchant tonnage or for more than 35 percent of that of any one of the three leading domestically owned¹ fleets—the Japanese, British, and Norwegian (see table 3).

A QUALITATIVE LOOK AT THE CURRENT SOVIET FLEET

Although 65 percent of the tonnage in the Soviet fleet is under 10 years old, it is not competitive by Western standards. Its tankers and dry bulk carriers are small and most of its cargo liners are technologically backward. The size of Soviet ships averages only 9,000 dwt—less than half the world average—due largely to draft restrictions at shallow Soviet ports. Few Soviet harbors can handle dry cargo ships larger than 23,000 dwt or tankers above 50,000 dwt. Consequently, in an era when tankers of almost 500,000 dwt are in operation, the U.S.S.R. had only one tanker, two combination oil/dry bulk carriers, and one dry bulk carrier larger than 50,000 dwt at the end of 1974. All four of these ships are being used in other countries' trades (cross trades) pending completion—in 1977 or later—of efforts to deepen Soviet ports.

Despite the revolutionary impact of the containership on cargo liner service around the world since 1960, Soviet entry into the container era has been slow and cautious. Its liner fleet still consists largely of outmoded conventional ships, only a few of which carry general cargo in containers.

TABLE 1.—*Soviet merchant fleet size and growth*

Year	Inventory as of December 31		Net increase in tonnage		Deliveries during year (million dead-weight tons)
	Number	Million dead-weight tons	Million dead-weight tons	Percent	
1959	590	3.3	0.3	6	0.4
1960	650	3.9	0.6	18	0.6
1961	680	4.2	0.3	8	0.4
1962	740	4.8	0.6	14	0.7
1963	820	5.7	0.9	19	0.9
1964	900	6.9	1.2	21	1.3
1965	990	8.0	1.1	16	1.2
1966	1,070	8.9	0.9	12	1.0
1967	1,150	9.7	0.8	9	0.8
1968	1,230	10.4	0.7	8	0.8
1969	1,310	11.2	0.8	7	0.8
1970	1,400	11.9	0.7	7	0.8
1971	1,440	12.3	0.4	3	0.5
1972	1,460	12.6	0.3	2	0.5
1973	1,520	13.4	0.8	6	1.0
1974	1,590	14.2	0.8	6	0.9

¹ As opposed to "flag of convenience" fleets such as that of Liberia which is largely owned by foreign interests.

TABLE 2.—*Seaborne foreign trade*
(million metric tons)

Year	Seaborne foreign trade	Absolute increase	Growth rate (percent)
1950	8.4		
1958	25.6		
1959	34.8	9.2	36.1
1960	44.7	9.9	28.4
1961	58.5	13.8	31.0
1962	67.0	8.4	14.4
1963	75.6	8.6	12.9
1964	83.7	8.1	10.7
1965	91.8	8.2	9.8
1966	102.7	10.9	11.9
1967	108.8	6.0	5.8
1968	111.9	3.1	2.9
1969	116.1	4.2	3.7
1970	121.4	5.3	4.6
1971	127.6	6.3	5.2
1972	139.2	11.6	9.1
1973	149.5	10.3	7.4
1974	140.3	- 9.2	- 6.2

TABLE 3.—*The world's 10 largest merchant fleets*

	Million deadweight tons as of Dec. 31, 1974	Percent of world total
Liberia	112.1	22.5
Japan	60.2	12.1
United Kingdom	53.0	10.6
Norway	43.3	8.7
Greece	36.7	7.4
Panama	18.5	3.7
France	16.2	3.3
Italy	14.6	2.9
United States (active) ¹	14.5	2.9
U.S.S.R.	14.2	2.9
Other	113.9	23.0
World total	497.2	100.0

¹ Excluding approximately 2.9 million deadweight tons of obsolete Government-owned tonnage in the reserve fleet.

As of December 31, 1974, the U.S.S.R. had only 15 full containerships with a total capacity of 60,000 dwt and 3,350 20-foot containers. In contrast, the U.S. fleet of full containerships—largest in the world—included 75 ships of 1.5 million dwt with space for 85,000 containers. The largest Soviet containership was a 6,400-dwt vessel with a speed of only 17 knots and a container capacity of 358 while some Western containership fleets included ships as large as 49,000 dwt. Some of these have space for almost 3,000 containers and can move at speeds as high as 33 knots.

The Soviet fleet has been even slower in adopting two other ship types devised to facilitate the movement of liner cargoes—the roll-on/roll-off (ro/ro) ship and the barge carrier. Ro/ro ships, first acquired by the U.S.S.R. in 1974, have the ability to load and discharge wheeled vehicles and cargoes loaded on trailers faster than either conventional cargo liners or full container ships. Their greatest successes to date have been in the short-haul trades between the United Kingdom and the Continent and the United States and Puerto Rico and on such long-haul routes as Western Europe—U.S. East Coast and Western Europe—Australia. The largest ro/ros acquired through the end of 1974 by the U.S.S.R. were 6,000 dwt units with speeds of 17 knots; the best West European ro/ros are 22-knot vessels exceeding 20,000 dwt.

The U.S.S.R., which possesses a highly developed system of inland water transportation linked at many points with the sea, probably has more potential uses for barge carriers than any other country. Like the containership and the ro/ro, the barge carrier spends very little time in port. It carries small shallow-draft barges loaded with general cargo and drops them off at a foreign port where tugs can tow them to inland points by waterway or to shallow coastal ports. Most of the 30 barge carriers currently operating in world trade are U.S.-flag vessels operating out of U.S. ports. The heaviest traffic is between New Orleans, which interfaces with the Mississippi System, and Rotterdam at the mouth of the Rhine. The U.S.S.R. ordered construction of its first barge carriers in 1975—one series from Poland² and a second³ in Finland.

EMPLOYMENT OF THE FLEET AND ITS ROLE IN THE NATIONAL ECONOMY

The chief mission of the Soviet merchant fleet is the carriage of Soviet cargo. Until 1956, the fleet's role was more important in the country's domestic than in its foreign trade. In that year, for the first time, the ton-mile performance of the fleet in foreign trade exceeded that in coastal trade. In 1966, the tonnage of cargo carried by the fleet in foreign trade surpassed that in domestic trade for the first time. Data on fleet performance in 1974 indicate the following allocation of fleet output and carriage:

² Based on U.S. LASH (Lighter aboard ship) technology.

³ Based on the U.S.-designed "Seabee"-class vessels of Lykes Bros. Steamship Co.

	Output		Carriage	
	Billion ton-miles	Percent	Million tons	Percent
Total	417.0	100	192.0	100
In foreign navigation ¹	385.0	92	114.0	59
In domestic service	32.0	8	78.0	41

¹ Reflects fleet activity both in Soviet foreign trade and the cross trades.

The domestic activities of the Soviet fleet, in which it has a complete monopoly, consist largely of bulk cargo movements in the Black Sea, Caspian, and Far Eastern Basins and the servicing of ports in the Far East and along the Northern Sea Route, particularly those that have no rail or road access.

Of the 114 million tons moved by the Soviet fleet in international trade during 1974, about 90 million tons consisted of Soviet imports and exports. The remainder was cross trade cargo moved between foreign ports.

The most important single determinant of the employment of the Soviet merchant fleet and of its composition is Soviet seaborne foreign trade. Three aspects of this trade are important—the preponderance of exports over imports, its distribution among trading partners, and its commodity composition.

Total trade in 1974 reached more than 140 million tons; exports accounted for 118 million tons, 84 percent of the total. The export share in total Soviet seaborne trade tonnage has run close to 84 percent since the late 1950's, making the fleet's chief role that of an earner of foreign exchange in delivering Soviet exports. Because the capacity of Soviet ships returning to home ports after delivering exports far exceeds the volume of Soviet imports, the U.S.S.R. has been able during most years to carry a high proportion of its imports on its own ships, thereby minimizing payments of foreign exchange to non-Soviet shipowners. The only years in which the U.S.S.R. has had to rely heavily on foreign ships to carry imports have been those in which poor harvests have led to heavy grain imports.

Oil, which accounts for almost half of total Soviet seaborne trade, is the chief export in volume terms. For this reason, one-third of fleet capacity consists of tankers (see table 4). Wood, metallic ores, coal, and phosphate rock are also important bulk exports. Wood moves on small specialized timber carriers while the other bulk cargoes move on general-purpose and dry bulk cargo ships. A majority of the bulk goods are sold to the U.S.S.R.'s industrial trading partners such as Italy, Japan, the United Kingdom, and West Germany, allowing Soviet ships participating in these trades to earn hard currency. Carriage of this trade is shared with ships of the trading partners and customer-chartered third-flag ships.

TABLE 4.—U.S.S.R. Merchant fleet composition, Dec. 31, 1974

	Million deadweight tons	Percentage of total
Tankers and combination carriers	4.84	34.1
Dry cargo ships	9.38	65.9
General purpose (liners)	6.12	43.0
Timber carrier	1.82	12.8
Bulk carrier (5,000-plus deadweight tons)80	5.6
Full containership06	.4
Miscellaneous58	4.1
Total fleet	14.22	100.0

Another important aspect of Soviet export trade is the delivery of manufactured goods to Communist client countries such as Cuba and Vietnam and developing countries such as Egypt, Iraq, and India. The benefits to the fleet from participation in trade with these countries are more political than economic. Most of these cargoes move in Soviet liners or ships of trading partners.

Soviet imports by sea include a high proportion of industrial goods from developed countries carried on Soviet liners or liners of trading partners' steamship companies with which Soviet companies operate joint services. The only bulk cargo imported by the U.S.S.R. in sizable quantities is grain. In those years when Soviet grain imports are heavy—as in the 1963–64, 1965–66, and 1972–73 crop years—the U.S.S.R. has to supplement its modest fleet of dry bulk carriers with chartered foreign vessels. Hard currency chartering expenditures for such ships can exceed \$150 million a year.

THE SOVIET MERCHANT FLEET AS A CROSS TRADER AND A COMPETITOR

Soviet carriage of cross trade cargoes between foreign ports has been on the increase since the mid-1960's. Tonnages grew from 7.5 million tons in 1965 to 15 million tons in 1970, and more than 22 million tons in 1974. Initially Soviet ships carried cross trade cargoes under only two circumstances—when they were returning to the U.S.S.R. after the delivery of exports or when they were chartered out to foreign shippers for the winter months when the icing of northern ports reduces Soviet shipping needs. Now some Soviet ships spend full time cross trading. Much of the cargo consists of bulk commodities carried for Communist and LDC trading partners with payment in soft currency. Examples of this include Canadian flour moving to Cuba and Middle Eastern oil moving to Eastern Europe.

With the expansion of Soviet liner services, the fleet has been carrying increasing quantities of manufactured goods between non-Communist industrial countries to earn hard currency. The first Soviet lines in the cross trades were initiated in 1965. As of mid-1964, the U.S.S.R. had 31 international cargo lines, all predominantly in Soviet trade. By mid-1975, the total number of lines had risen to 58—20 of them largely or entirely in cross trades.

In managing its 58 international cargo lines the U.S.S.R. prefers to operate as an independent outside of the conference system⁴ (see table 5). At midyear, only five Soviet cargo lines were affiliated with conferences and none had joined a conference since 1973. As nonconference operators, Soviet steamship companies running conventional and container services on key trade routes such as the North Pacific between the United States and Japan and the North Atlantic between the United States and Western Europe charge rates at least 15 percent below those charged by the conference lines. Other nonconference lines follow the same practice. Although Soviet ships are slower and their services more primitive than those of the conference lines, lower Soviet rates have attracted a sufficient volume of cargo from non-Communist shipowners to cause widespread concern, particularly in Western Europe. When the Soviets begin to obtain competitive ships, the threat will become more serious.

⁴ Conferences are organizations of steamship companies operating cargo lines on given trade routes. They set the rates charged by member lines and allot sailings among them. Nonconference lines often operate on the same routes as "independents" or "outsiders".

Table 5

USSR: International Cargo Lines
30 June 1975

Lines Operated Unilaterally by Soviet Steamship Companies

<u>Company</u>	<u>Route</u>
Murmansk Arctic	Soviet Baltic/Western Europe - Eastern Canada/Great Lakes <u>a/</u>
Baltic	Soviet Baltic/Western Europe - US East Coast (BALT - ATLANTIC) <u>a/ c/</u>
Baltic	Soviet Baltic/Western Europe - Australia <u>b/ c/</u>
Baltic	Soviet Baltic/Western Europe - New Zealand <u>b/</u>
Baltic	Soviet Baltic/Western Europe - Venezuela and West Coast of South America (BALT-PACIFIC) <u>a/</u>
Baltic	Soviet Baltic/Western Europe - Central America, West Indies and US and Mexican Gulf. (WICAS)
Baltic	Soviet Baltic/Finland - Netherlands/Belgium (BALT-SCAN) <u>a/ c/</u>
Baltic	Soviet Baltic - West Germany/East Coast United Kingdom (London) <u>c/</u>
Baltic	Soviet Baltic - West Germany/Netherlands <u>c/</u>
Baltic	Soviet Baltic - Cuba
Baltic	Soviet Baltic - Belgium <u>c/</u>
Baltic	Soviet Baltic - East Coast United Kingdom (Hull) - Belgium - Finland <u>c/ d/</u>
Baltic	Soviet Baltic - Sweden - Italy - UAR - Western Europe - (SCAN-MED-CONT) <u>a/</u>
Baltic/Latvian	Soviet Baltic/Western Europe - Portugal/Spain (PORTOBALTICA)
Estonian	Soviet Baltic/Western Europe - Eastern Mediterranean (BALT-LEVANT) <u>a/</u>
Estonian	Soviet Baltic - Sweden (E. Coast)
Estonian	Soviet Baltic - Denmark-Norway-Eastern Mediterranean (SCANLEVANT)

<u>Company</u>	<u>Route</u>
Estonian	Soviet Baltic - Norway and Denmark
Estonian	Soviet Baltic/Finland/Norway - Netherlands/Belgium d/
Lithuanian	Soviet Baltic - West Germany c/
Latvian	Soviet Baltic - East Coast United Kingdom (London/Tilbury) c/
Danube	Soviet Danube - Near East (Lebanon, Syria, UAR, and Cyprus)
Danube	Soviet Danube - Turkey
Danube	Soviet Danube - North Africa
Danube	Soviet Danube - Greece
Black Sea	Soviet Black Sea - Persian Gulf (Iraq)
Black Sea	Soviet Black Sea - Syria
Black Sea	Soviet Black Sea - North Vietnam
Black Sea	Soviet Black Sea - Cuba
Black Sea	Western Europe/Soviet Black Sea - Southeast Asia (ODESSA OCEAN) a/
Black Sea	Soviet Black Sea/Mediterranean Europe - Eastern Canada/Great Lakes b/ c/
Black Sea	Soviet Black Sea - East Africa/Red Sea
Azov	Soviet Black Sea - Turkey/Greece
Azov	Soviet Black Sea - Italy c/
Azov	Soviet Black Sea - Near East
Caspian	Iran (Caspian) - Baltic - North Sea (via Volga - Baltic Waterway) a/

<u>Company</u>	<u>Route</u>
Far East	Southeast Asia - Western Canada and the United States (STRAITS PACIFIC)
Far East	Soviet Far East/Japan - Western Canada and the United States a/ c/
Far East	Soviet Far East/Japan - Western Canada and the United States a/
Far East	Soviet Far East/Japan - Southeast Asia/India a/
Far East	Soviet Far East - Hong Kong - Japan a/ c/
Far East	Soviet Far East/Japan a/ c/
Far East	Soviet Far East/Philippines a/ c/

Lines Operated Jointly by Soviet and Foreign Steamship Companies

<u>Soviet Company</u>	<u>Route</u>	<u>Nationality of Foreign Partner</u>
Baltic	Soviet Baltic - East Coast United Kingdom (London) c/	British
Baltic	Soviet Baltic/Western Europe - East Coast of South America b/ (BALTAMERICA)	Polish and East German
Estonian	Soviet Baltic - West Germany	West German
Estonian	Baltic/Western Europe - West Africa (UNIAFRICA) b/	Polish and East German
Latvian	Soviet Baltic - West Coast United Kingdom c/	British
Latvian	Soviet Baltic - East Germany c/	East German
Latvian	Soviet Baltic - France (Atlantic) c/ d/	French
Latvian	Soviet Baltic - Netherlands c/	Dutch
Latvian	Soviet Baltic - Belgium c/	Belgian
Black Sea	Soviet Black Sea - Bulgaria c/ d/	Bulgarian
Black Sea	Soviet Black Sea - U.A.R. c/	Egyptian
Black Sea	Soviet Black Sea - India/Ceylon	Indian
Black Sea	Soviet Black Sea - Southern France	French
Azov	Soviet Black Sea - Algeria	French
Far East	Soviet Far East - Japan	Japanese

- a. An independent line operating largely or entirely in the cross (or transit) trades.
 b. A conference line operating largely or entirely in the cross trades.
 c. Line offering full or partial container service.
 d. Line offering, full or partial, roll/on - roll/off service.

SOVIET SHIPPING IN THE LAST YEAR OF THE 1971-75 PLAN

Despite a speeding up of deliveries that may have pushed 1975 additions above 1964's record of 1.3 million tons, the U.S.S.R. did not come close to the Five Year Plan goal of a 16.3 million dwt fleet by the end of 1975. Deliveries during the first 2 years of the plan were at only half the projected pace. This shortfall has been paralleled by failures in meeting the 1975 performance goals of 496 billion ton-miles and 205 million tons of cargo carried.

Although all plan goals were not fulfilled, progress was made during 1975 in alleviating some of the more obvious qualitative deficiencies of the fleet. The delivery of additional Soviet-built *Krym*-class tankers of 150,000 dwt and additional Polish-built *Marshal Budyenny*-class combination oil/dry bulk carriers pushed up the average size of Soviet oil carriers. With the worldwide surplus of tankers growing, the U.S.S.R. is, however, considering shelving plans to build a still larger tanker of 330,000 dwt. This supertanker, conceived during the tanker boom that preceded the Arab oil embargo in 1973 and too large to use Soviet ports in the foreseeable future, was intended strictly as a hard currency earner to be chartered out to foreign shippers.

Acquisition of 105,000 dwt combination carriers and Soviet-built dry bulk carriers of 50,000 dwt has boosted the size of the U.S.S.R.'s small bulk carrier fleet and the ships in it.

Plans for the upgrading of ships in the liner service in 1975 and after indicate that the U.S.S.R. has decided to concentrate more on ro/ro vessels with container carrying capabilities than on full containerhips. Ro/ro ships offer expeditious handling and carriage of wheeled vehicles and general cargo in trailers, can accommodate containers and palletized cargo, and are especially well adapted for the fast delivery of military vehicles. Although the ability of such ships to compete in terms of cost and port turnaround time with the latest pure containerhips in the movement of containerized cargo has not been convincingly demonstrated, modern Soviet ro/ros will be fully competitive with their western equivalents.

Anticipated acquisitions for liner use include only one important class of modern containerhips and a wide variety of ro/ro classes. Classes in those two categories are listed in table 6. The new containerhips belong to the 13,000 dwt East German-built *Khudozhnik Saryan* (Mercur) class. With speeds of more than 20 knots and capacity for 774 20-foot containers, they are the first Soviet full containerhips suitable for trans-Pacific and trans-Atlantic service. While much

TABLE 6.—New classes of containerhips and Ro/ros introduced or anticipated in 1975 and after

Class	Type	Builder	DWT	Container capacity	Knots
Khudozhnik Saryan (Mercur)	Full container	East Germany	13,300	774	20.5
Magnitogorsk	Ro/ro-container	Finland	21,000	1,100	22.0
Kapitan Smirnov	Ro/ro-container	U.S.S.R.	20,000	1,000+	25.0
Skulptor Kononov	Ro/ro-container	Poland	12,500	800	21.0
Akademik Tupolev	Ro/ro-container	France	4,200	235	16.9
Ivan Skuridin (Neva)	Ro/ro	U.S.S.R.	4,800	242	17.0

more competitive than the next best Soviet containerships—the 17-knot *Aleksandr' Fadeyev* class with a container capacity of 358—they still fall well short of modern Western containerships.

Three classes of large ro/ro containerships—the 20,000 dwt Soviet-built *Kapitan Smirnov* (Atlantika) class, the 21,000 dwt Finnish-built *Magnitogorsk* class, and the 17,500 dwt Polish-built *Skulptor Konenkov* class—are under construction. The *Kapitan Smirnov*, featuring a unique 50,000-horsepower gas turbine powerplant, has a design speed of at least 25 knots and a container capacity of more than 1,000. The *Magnitogorsk* is a 22-knotter capable of carrying 1,100 containers while the *Skulptor Konenkov* is a 21-knotter with an 800-container capacity. All of these ships should be fully competitive with their non-Communist counterparts—West European ships currently carrying wheeled and containerized cargo on the North Atlantic and between Australia and Europe.

Additional classes planned or already delivered in 1975 include smaller French-built 4,200 dwt ro/ro/containerships of the *Akademik Tupolev* class, and Soviet-built 4,800 dwt ro/ro ships of the *Ivan Skuridin* class.

As of mid-1975 the U.S.S.R., which had no ro/ro ships in mid-1974, was offering ro/ro service on at least four lines—three between Soviet Baltic ports and Europe and one between Soviet and Bulgarian ports on the Black Sea. All of these services are largely in Soviet trade and are not competing with western companies.

1976-80 FIVE YEAR PLAN

The processes of modernization observable in the pattern of deliveries to the Soviet merchant fleet in 1975 will continue on a modest scale into the 1976-80 Five Year plan. Planned deliveries will raise the average sizes of both tankers and dry bulk carriers, and capabilities for the expeditious handling of liner cargoes will improve as the Soviets add their first truly competitive containerships, ro/ros, and barge carriers. Under the Plan, fleet capacity will increase by 22 percent from 15.1 million dwt at the end of 1975 to 18.4 million dwt at the end of 1980. Reflecting both new acquisitions and improvements in productivity, fleet performance is expected to increase by 32 percent during the same period from 394 to 520 billion ton-miles. The 1980 goal for tons carried—which reached 200 million in 1975—is 250 million tons.

Planned fleet growth envisages losses and retirements of ships totaling 1.6 million dwt and—as in the 1971-75 Plan—deliveries of new ships totaling close to 5 million dwt. Tankers account for 54 percent of the planned tonnage and combination in carriers and dry cargo ships the remainder (see table 7). More than half of the tanker tonnage will consist of vessels in the 100,000 to 150,000-dwt range; the rest will be made up of ships 40,000-dwt and under.

The heaviest deliveries of dry cargo ships will consist of dry bulk carriers—690,000 dwt, general purpose freighters—380,000 dwt, and timber carriers—290,000 dwt. The bulk tonnage will be made up largely of ships in the 50,000 to 150,000 dwt range.

APPENDIX: THE ADMINISTRATION OF OCEAN SHIPPING IN THE U.S.S.R.

The All-Union Ministry of the Maritime Fleet in Moscow controls ocean shipping under the Soviet flag. The Ministry is directly subordinate to the Council of Ministers and has close ties with Communist Party economic organizations dealing with transportation.

The Minister of the Maritime fleet is advised by a Collegium consisting of his deputies and the chiefs of the key sub-units of the Ministry. These functionally organized sub-units include six "main administrations" and at least 11 "administrations" (see table 7).

TABLE 7.—*Ships planned for delivery to the Soviet merchant fleet, by type*

	1,000 deadweight tons	Percent
Dry cargo -----	1,840	37
Day bulk carriers -----	700	14
General purpose freighters -----	420	8
Timber carriers -----	290	6
Roll-on/rolloff ships -----	200	4
Full containerships -----	130	3
Barge carriers -----	80	2
Refrigerator -----	20	negligible
Combination oil/dry bulk carriers -----	550	11
Tanker -----	2,610	52
50,000 deadweight tons and up -----	1,260	25
40,000-49,999 deadweight tons -----	360	7
20,000-39,999 deadweight tons -----	420	9
10,000-19,999 deadweight tons -----	500	10
Less than 10,000 deadweight tons -----	70	1
Total -----	5,000	100

Also attached to the Ministry are the Soviet ship classification society—U.S.S.R. Register of Shipping— and two important semi-autonomous organizations—Sovfracht and Sovinplot. Sovfracht charts foreign ships on behalf of the Ministry and various foreign trade organizations and handles the chartering of Soviet tramp vessels to foreign shippers. Sovinplot's chief functions are managing the network of agencies that represent Soviet ships calling in foreign ports and foreign ships in Soviet ports and organizing Soviet overseas liner services.

The operating structure of the Ministry is coordinated by the Main Administration for Operation of the Fleet and Ports through three regional administrations and 17 steamships companies (see table 8).

USSR: Ministry of the Maritime Fleet Operating StructureMain Administration for Operation
of the Fleet and Ports

<u>Administration for Operation of the Fleet and Ports of the Northwestern Basin (SEVZAPFLOT)</u>	<u>Administration for Operation of the Fleet and Ports of the Southern Basin (YUZHFLOT)</u>	<u>Administration for Operation of the Fleet and Ports of the Far Eastern Basin (DAL'FLOT)</u>
1. Northern Steamship Company (Arkhangel'sk)	1. Black Sea Steamship Company (Odessa)	1. Far Eastern Steamship Company (Vladivostok)
2. Murmansk Steamship Company (Murmansk)	2. Novorossiysk Steamship Company (Novorossiysk)	2. Primorskiy Steamship Company (Nakhodka)
3. Baltic Steamship Company (Leningrad)	3. Azov Steamship Company (Zhdanov)	3. Sakhalin Steamship Company (Kholmsk)
4. Estonian Steamship Company (Tallinn)	4. Georgian Steamship Company (Batumi)	4. Kamchatka Steamship Company (Petropavlovsk)
5. Latvian Steamship Company (Riga)	5. Soviet Danube Steamship Company (Izmail)	
6. Lithuanian Steamship Company (Klajpeda)	6. Caspian Steamship Company (Baku)	
	7. Central Asiatic Steamship Company (Chardzhou)	

SOVIET MARITIME ACTIVITIES IN LINER TRADES OF THE UNITED STATES

(By Robert G. Adam and Marvin H. Witteveen¹)

FOREWORD

This report on the activities of the Soviet merchant fleet operating in the liner trades of the United States was prepared by members of the staff of the Federal Maritime Commission in response to a request by The Honorable Ernest F. Hollings, Chairman of the National Ocean Policy Study of the Senate Committee on Commerce.

Our objective in this study has been confined to the Commission's area of responsibility involving the regulatory aspects of U.S.-Soviet maritime activities. No attempt has been made to include a general discussion of the Soviet merchant marine nor the operating results of the U.S.-U.S.S.R. Maritime Agreement: These are areas of study falling under the jurisdiction of other agencies or more appropriately to be examined by individual scholars.

The Commission staff members responsible for the preparation of this study have attempted to report on the growing Soviet maritime presence in the U.S. liner trades and to explore some proposals to deal with the phenomenon of third-flag carriers operating in our sea lanes. The authors wish to mention the valuable contribution of Dorothy K. Webb for her diligent statistical research efforts.

INTRODUCTION

The U.S. liner trade is essentially an open trade without restrictions to entry or exit. Groups of carriers organized as shipping conferences, establish agreed upon rate levels for member carriers and operate on most of the major trade routes. Carriers, however, are not required to join these cartels. Freedom of entry into high-volume markets can lead to overcapacity. Where overcapacity exists, it is not uncommon for non-conference operators to offer rates substantially below conference levels to attract cargoes; and under these conditions, conference carriers may be tempted to offer rebates or to engage in other types of illegal practices to meet non-conference competition.

On U.S. routes, Soviet carriers are operating under a policy of offering frequent sailings at reduced rates to penetrate our trades. They tend to offer lower rates on attractive cargo to maximize hard currency earnings from shipping revenues.

The Soviets are adopting such American innovative concepts as containerization, LASH, and roll on/roll off ships to develop a stronger and more viable merchant marine. It has been estimated that the U.S.S.R. will have a container fleet in excess of 50 ships by 1980;

¹ The authors are on the research staff of the Federal Maritime Commission.

several of these vessels will have a capacity of 1400 20-foot container equivalents. In contrast, the U.S. privately owned intermodal fleet totaled 148 ships on April 30, 1975 including 110 full containership vessels.²

There are several indications that a steadily increasing share of U.S. liner cargo is moving on non-national flag crosstrading vessels operating in our trades. Legislation has been proposed to remedy this situation and it is now before the Congress. Senate bill 868 would have as its objective the prevention of "dumping" of excess ship capacity in U.S. sea lanes by these third-flag carriers. The bill offers a criteria under which non-national flag operators would be required to demonstrate that their freight rates are compensatory on a commercial cost basis. Under the provisions of the bill these carriers would be prohibited from charging a rate lower than the lowest corresponding rate of the carriers of the national flag fleets operating in that U.S. trade unless it could be justified that a lower rate covered their fully distributed costs on a commercial basis.

The intended purpose of S. 868 is to provide the necessary machinery to cope with these third-flag operators through regulation of their rate-setting practices. Some opposition to the legislation centers around fears that the bill will result in a loss of the competitive balance to the shipping conferences by opening up the possibility of higher freight rates and that it may be in violation of U.S. treaties. The conference system itself could be endangered by following a "do-nothing" policy about these third-flag operators. If one accepts the widely held premise that the conferences fulfill a useful purpose in providing stability of rates and services, it would seem to be to our advantage to offer reasonable protection for the conference system in our trades. While S. 868 has not been universally well received, and while it is a matter of debate whether, in its present form, it can deal effectively with the problems of third-flag carriers, a persuasive argument can be made that measures need to be taken, legislative or otherwise, to assure that U.S. foreign trades continue to enjoy stable and efficient service at reasonable rates.

SOVIET CARRIERS IN UNITED STATES LINER TRADES

The Soviet merchant marine consists of 16 steamship companies, but relatively few have become direct participants in United States foreign commerce. The companies that participate in United States foreign commerce and the liner services they operate by trade areas are:

A. Murmansk Steamship Company: The "Arctic Line" which links United States Great Lakes ports and ports in Europe.

B. Black Sea Steamship Company doing business as Black Sea Canada Line serves U.S. Great Lakes, Mediterranean, East African, Gulf of Aden, Red Sea, and Persian Gulf ports. This line also serves between U.S. Atlantic ports and Black Sea ports in the U.S.S.R., and some Mediterranean ports.

C. Baltic Steamship Company, also doing business as Balt-Atlantic Line, serves U.S. Atlantic and Gulf ports and ports in Europe,

² Maritime Administration.

the Caribbean, the North Coast of South America, and the East Coast of Central America and Mexico.

D. Far Eastern Shipping Company doing business as FESCO Line, FESCO Pacific Lines, and FESCO Straits Pacific Line. This Company serves U.S. Pacific Coast ports and ports in the Far East including the USSR, Japan, Korea, Hong Kong, the Philippines, Malaysia, Indonesia, Thailand and Singapore. An agreement between FESCO and Lykes Bros. Steamship Company has been submitted for Commission approval; this relates to a service between U.S. Gulf Coast ports and Far East ports.

CONFERENCES AND AGREEMENTS

The Soviets currently belong to two rate agreements (9427 and 9552) in the North Atlantic Continental trades (Antwerp/Hamburg range), through which they are to some extent able to reach agreement on rates with the respective eastbound and westbound conferences in this trade and also with three other rate agreement members; Polish Ocean Line, Finnline, and New England Express Line. These agreements provide for the right of independent action. One Soviet line is a member of two conferences operating between U.S. Great Lakes ports and ports in the Mediterranean sea.

The following is a listing of those agreements to which Soviet carriers belong. The Soviet carriers are the Black Sea Steamship Company or Black Sea Canada Line, Baltic Shipping Company, and the Far Eastern Shipping Company.

8260 Mediterranean-U.S.A. Great Lakes Westbound Freight Conference.

Trade: From Mediterranean, Black Sea and Atlantic ports of Morocco, Spain and Portugal; to U.S. Great Lakes and St. Lawrence River ports west of Montreal.

Members: Black Sea Canada Line, San Rocco Line, Yugoslav Great Lakes Line, and Lykes Bros. Steamship Company, Inc.

9000 American Great Lakes-Mediterranean Eastbound Freight Conference.

Trade: From U.S. Great Lakes and St. Lawrence River ports of the U.S.; to Atlantic ports on the Iberian Peninsula, European, Asian and African ports on the Mediterranean (including Black Sea ports) and Atlantic Coast African ports including but not south of Casablanca.

Members: Black Sea Canada Line, San Rocco Line and Yugoslav Great Lakes Line.

9020 Medchi Freight Pool Agreement.

Trade: From Mediterranean, Black Sea ports and Atlantic ports of Morocco, Spain and Portugal; to U.S. Great Lakes and St. Lawrence River ports west of Montreal.

Members: Black Sea Canada Line, Yugoslav Great Lakes Line and Zim Israel Navigation Co.

(Pool operation was suspended on February 28, 1973)

9427 Germany-North Atlantic Ports Rate Agreement.

Trade: From the Federal Republic of Germany, the Netherlands and Belgium; to U.S. North Atlantic ports in the Hampton Roads-Portland, Maine range.

Members: Baltic Shipping Company, Continental-North Atlantic Westbound Freight Conference, Finnlincs, Ltd., New England Express Line and Polish Ocean Lines.

9552 North Atlantic-West Europe Rate Agreement.

Trade: From U.S. North Atlantic ports; to ports in West Europe (Antwerp/Hamburg range).

Members: Baltic Shipping Company, Finnlincs, Ltd., New England Express Line, Polish Ocean Lines and the North Atlantic Continental Freight Conference.

9856 International Passenger Ship Association.

Trade: Between U.S. and Canadian Atlantic Coast ports, U.S. Gulf ports and ports on the St. Lawrence River and Seaway and the Great Lakes; and all ports of European, Mediterranean Sea and Black Sea countries, also ports of Morocco, Madeira and Azores Islands.

Members: Baltic Shipping Company, Greek Line (JS), Hellenic Lines, Ltd., Holland America Line, Home Lines, Inc., Ingres Line, Italian Line, Norwegian America Line, Polish Ocean Lines, Cie., Paquet, Royal Viking Line, Inc., Swedish America Line.

10112 and 10113 Transshipment Agreements between Baltic Shipping Co., and Lykes Bros. Between Lykes' ports of call in the Gulf and Baltic Shipping's ports of call in the Baltic Sea, with transshipment at Bremerhaven, Bremen, Hamburg, Rotterdam and Antwerp.

10114 and 10115 Transshipment Agreements between Black Sea Shipping and Lykes Bros. Between Lykes' ports of call in the Gulf and Black Sea Shipping's ports of call in the Black Sea, with transshipment at Genoa, Leghorn and Istanbul.

10148 and 10149 Transshipment Agreements between Baltic Steamship Co., and American Export Lines, Inc. Between the ports of call on the Baltic Sea serviced by Baltic Steamship Co., with transshipment at Amsterdam or Bremerhaven or any other port mutually satisfactory to both parties.

The only approved agreement in the Far East trade to which a Soviet carrier is a party is the Far East Discussion Agreement (No. 9981). The Far Eastern Shipping Co., of Vladivostok, was admitted to membership in said agreement effective May 9, 1975. There are two pending agreements in the aforesaid trade area to which the Far Eastern Shipping Co. is a signatory; i.e., Agreement No. 10143, a discussion agreement; and Agreement No. 10167, an agency agreement.³

FAR EAST DISCUSSION AGREEMENT (NO. 9981)

Agreement No. 9981 was originally approved by the Commission on June 20, 1972 and has recently been extended for a third time. The subject agreement is comprised of 23 member lines engaged in the foreign oceanborne commerce of the United States between ports in the Far East and ports in the United States. The purpose of the agreement is to exchange information and to cooperate in developing information relating to (1) cargo movements and the level and frequency of steamship service required by shippers; (2) cost

³ FESCO was admitted to the Far East Conference (Agreement No. 17) on July 16, 1975.

of service, rates, rules and tariffs; and (3) practices in connection with the receipt and delivery of cargo including interchange with connecting land carriers.

As stated in the body of the agreement, the reason for this exchange of information is:

“ . . . to explore whether some rationalization of common carrier services and the evolution of uniform or agreed rules, practices and procedures are desirable . . . ”

MEMBER LINES OF AGREEMENT NO. 9981

American Export Lines, Inc., American President Lines, Ltd., Barber-Blue Sea Line, Far Eastern Shipping Company, Japan Line, Ltd., Kawasaki Kisen Kaisha, Ltd., Knutsen Line, Korea Shipping Corporation, Lykes Bros. Steamship Company, Inc., Maersk Line, Maritime Company of the Philippines, Mitsui O.S.K. Lines, Ltd., Nippon Yusen Kaisha, Orient Overseas Line, Inc., Pacific Far East Line, Inc., Phoenix Container Liners, Ltd., Sea-Land Service, Inc., Seatrain Lines, Inc., Showa Shipping Company, Ltd., States Steamship Company, Ltd., United States Lines, Inc., Yamashita-Shinnihon Line, and Zim Israel Navigation Company, Ltd.

AGREEMENT NO. 10143

The subject agreement was filed with the Commission on October 7, 1974 and is still pending. Agreement No. 10143, among non-conference carriers, Orient Overseas Line/Orient Overseas Container Line (Joint Service Agreement No. 10037), Far Eastern Shipping Company and Seatrain International, S.A., operating in the trade from ports in Japan and Korea to Pacific Coast ports of the United States, covers an arrangement whereby the parties may confer and discuss, (but without authority to agree) on rates, charges, classifications, practices and tariff matters to be charged or observed by those in the trade. (The Trans-Pacific Freight Conference of Japan/Korea, Agreement No. 150 as amended, is the conference operating in the trade covered by Agreement No. 10143). The Trans-Pacific Freight Conference of Japan/Korea protested the approval of the subject agreement on November 15, 1974 and requested that a hearing be held. In April 1975, counsel for the parties concerned requested that the Commission staff withhold action on the agreement in order to afford the parties sufficient time to consider withdrawal of their agreement in favor of a new type of agreement. The staff contacted counsel for the parties on August 5, 1975 to determine whether a decision in the matter had been reached. Counsel advises that the parties may withdraw the agreement, however, no final decision has as yet been made.

AGREEMENT NO. 10167

The subject agreement was filed with the Commission on July 3, 1975. Agreement No. 10167, between the Far Eastern Shipping Company and Lykes Bros. Steamship Co., Inc., covers an arrangement whereby FESCO appoints Lykes to act as its agent to solicit and book cargo and perform related activities at all U.S. Gulf ports under

terms and conditions set forth in the agreement. The arrangement would be in connection with the Trans-Pacific services of FESCO between U.S. Gulf ports and ports in Japan, Hong Kong, the Philippine Islands and Far Eastern ports of the U.S.S.R.

In the statement of justification filed simultaneously with Agreement No. 10167, Lykes advised that FESCO had agreed, as a condition to Lykes acting as FESCO's agent, to join the Far East Conference, Agreement No. 17.

The staff was informed by telex on July 16, 1975 that FESCO was admitted to membership in the Far East Conference Agreement No. 17. As a result this carrier simultaneously became a member of Agreement No. 8200. The latter is a Joint Conference Agreement between the Far East Conference and the Pacific Westbound Conference. FEC provides service between U.S. Atlantic and Gulf Coast ports and Far Eastern ports. PWC serves the U.S. West Coast Far East trade. As a member of the Far East Conference, FESCO will be required to abide by the rates, rules, and regulations published by the FEC in its tariffs on file with the Commission.

Another recent development which appears to reinforce the impression that Soviet shipping companies will indeed join conferences when it is advantageous to their best interests is evidenced by the admission of Black Sea Steamship Company to membership in the West Coast of Italy, Sicilian and Adriatic ports/North Atlantic Range Conference (W.I.N.A.C.) on July 17, 1975.

EXPANSION OF SERVICES IN U.S. TRADES

U.S. trade with the Soviet Union has increased dramatically over 1971 levels, even though 1974 and projected 1975 levels are lower than the 1973 peak volume which stemmed from massive Soviet grain imports. The synopsis below provides an overview of U.S.-Soviet trade between 1971 and 1975.

U.S.-U.S.S.R. TRADE TRENDS

[In millions of dollars]

U.S. Exports	1971	1972	1973	1974	1975 estimate
Manufactured goods	118.0	102.4	264.9	293.3	600.0
Other	42.5	444.2	922.2	318.6	250.0
Total	160.5	546.6	1,187.1	611.9	850.0
U.S. Imports	56.8	95.4	214.6	349.5	450.0
Trade turnover	217.3	642.0	1,401.7	961.4	1,300.0
U.S. Trade balance	103.7	551.2	972.5	262.5	400.0

Source: Dept. of Commerce, Bureau of East-West Trade.

In contrast to more variable levels of agricultural goods shipments, U.S. manufactured exports have increased steadily and should reach new highs in 1975 as shipments are made against large orders placed over the past three years according to the Commerce Department. U.S. imports from the Soviet Union have also increased sharply. These are primarily composed of semi-processed metals and mineral fuels

and lubricants, with imports of finished manufactured goods negligible in volume. A further increase in our imports from the U.S.S.R. in 1975 is expected.⁴

There has been a notable growth of the Soviet merchant fleet since 1960. The U.S.S.R. is developing a world network of services that now competes with those operated by Western countries. In recent years, the U.S.S.R. has emerged as a major maritime power. Its ships incorporate many of the latest engineering innovations, and advanced research and development is being undertaken on a continuing basis in all aspects of ship design and propulsion. The Soviet cargo fleet stood at 14.2 million dwt as of the end of 1974 compared with 13.4 million dwt at the end of 1973. Merchant ships are entering the Soviet merchant marine at a rate of close to one million DWT per year. Soviet flag ships are to be found serving most of the world's major ports including those in the U.S. Apparently, every effort is being made to increase the size, scope, and extent of Soviet shipping activities. Soviet container and roll on/roll off shipping is beginning to appear on sea lanes to a sizable degree and are gradually becoming regular components of the U.S.S.R.'s international shipping operations.⁵

The Soviet Far Eastern Shipping Company is considering an all-sea container service between Europe and the Far East. Black Sea Steamship Company has inaugurated a break-bulk service from the Continent to Southeast Asia. Baltic Steamship Company has confirmed vessel sailings to link Baltic and European ports to the U.S. East Coast. An alternative for the all-water cargo traffic between Europe and the Far East is by way of the Trans-Siberian landbridge which is currently being greatly expanded. This railway now accounts for 10 percent of total cargo movements in the Europe/Far East trade. This share of the trade is expanding since the Trans-Siberian rates are as much as 25 percent below conference rates on major moving commodities. While transit times vary, the all-water and overland routes compare favorably. The Trans-Siberian traffic rose from 15,000 containers in 1972 to 51,000 boxes in 1974 and there are estimates of 60,000 for 1975. Further expansion is subject to the continuing development of the ports of Nakhodka and Vostochnyy. One problem is: The volume of East-West traffic is twice that in the opposite direction.⁶

Another significant development is the proposed inauguration by FESCO of a direct liner service from Canada and the U.S. West Coast to Nakhodka and thence to Europe—a route which would provide a direct link between the Western U.S. and Canada and points in Europe via the Trans-Siberian landbridge. The Russians are developing other feeder links to tie Nakhodka to Manila, Hong Kong, and South Korea. Soviet shipping will likely continue to expand as new ships are delivered and brought on the line for service.⁷ Another route now being served by Soviet carriers is that between Europe and Australia.

The following tables show the Soviet-flag share of total liner, non-liner, and tanker cargoes on several trade routes in U.S. sea lanes where the U.S.S.R. merchant marine appears to be capturing a steadily increasing share of the traffic. The data used for the period January-

⁴ Dept. of Commerce, Bureau of East-West Trade.

⁵ Seatrade, March 1975.

⁶ Ibid.

⁷ Ibid.

September, 1974, is the most current cargo information available on Soviet movements in these trades.

On U.S. outbound routes, the Soviet share of total liner-type cargoes of 4 percent is noteworthy. Of particular importance are their shares of the liner tonnages on U.S. North Atlantic/European trade routes 7, 32, and 34 even though the volume of cargo involved is not large. These percentage shares of 13 percent, 22 percent, and 17 percent, respectively, are nonetheless important. The tonnages involved on trade routes 21 and 29—U.S. Gulf Coast/Europe and U.S. West Coast/Far East—are significant even though the respective percentage shares of Soviet outbound traffic are only 5 and 6 percent. Soviet movements of outbound nonliner and tanker cargoes are negligible.

Inbound, the overall Soviet share of total liner cargoes on the same trade routes is 3 percent. Their share of inbound liner cargo traffic on trade route 7—from German ports to the U.S. North Atlantic—where the Soviets accounted for 88,101 long tons or 12 percent of the total traffic is impressive. Another important trade area where the Soviet fleet is making inroads in the U.S. maritime trades is on trade route 29—the Far East to the U.S. West Coast—where FESCO ships accounted for 7 percent or 170,395 long tons of total inbound liner traffic. Here also nonliner and tanker tonnages were insignificant during the period.

Indications are that the U.S.S.R. will continue to expand and upgrade its merchant marine and introduce additional shipping services. Improvements in the overall quality of the fleet will be emphasized by continuing to add larger and more sophisticated classes of ships which will increasingly challenge and compete with the more technologically advanced fleets of the major western maritime powers. In general, U.S.-flag carriers face a serious competitor in the Soviet merchant marine—in particular from its growing fleet which will include 31 fast, high-capacity containerships operating in world sea lanes by 1978. This will mean added and serious competition for other maritime nations in traditional freight markets.

USSR-FLAG SHARE OF COMMERCIAL CARGO TONNAGE CARRIED IN THE U.S. OCEANBORNE FOREIGN TRADE
JANUARY - SEPTEMBER, 1974
(Excludes Cargo Between U.S. And USSR Ports)

TRADE ROUTES	TOTAL LONG TONS				USSR LONG TONS				USSR PERCENT			
	Liner	Nonliner	Tanker	EXPORTS	Liner	Nonliner	Tanker	Liner	Non-	Liner	Tanker	Tanker
5 - U.S. No. Atlantic to U.K. & Ireland	526,130	1,723,697	84,671	26	3,099	-	-	2	2	2	2	2
7 - U.S. No. Atlantic to W. Germany (North Sea)	424,537	2,064,342	31,900	55,101	314	-	13	-	-	-	-	-
8 - U.S. No. Atlantic to Netherlands, Belgium	1,157,213	3,685,456	272,502	50,650	1,174	-	4	-	-	-	-	-
10 - U.S. No. Atl. to Med., Black Sea, Portugal, Spain, Morocco and Azores (USSR ports excl.)	1,179,038	6,035,547	187,655	37	21	-	-	-	-	-	-	-
11 - U.S. So. Atl. to U.K. & Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.)	638,747	588,735	27,685	3,899	-	-	-	-	-	-	-	-
12 - U.S. Atlantic to Far East	1,292,223	7,160,487	147,603	728	1,799	-	-	-	-	-	-	-
13 - U.S. So. Atl./Gulf to Med., Black Sea, Portugal, Spain (So. of Portugal) Morocco and Azores (USSR ports excl.)	917,804	8,517,895	1,390,596	-	102,984	-	-	-	1	-	-	-
17 - U.S. Atl./Gulf/Pacific to Indonesia, Malaysia, Singapore	608,593	311,100	57,211	5,238	6,052	-	-	-	2	-	-	-
21 - U.S. Gulf to U.K., Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.)	1,716,253	14,656,753	2,982,471	77,811	201,763	25,987	5	1	-	-	-	-
29 - U.S. Pacific, Hawaii, Alaska to Far East	3,306,585	15,244,086	492,196	209,937	38,489	-	6	-	-	-	-	-
32 - U.S. Great Lakes to U.K., Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.)	106,565	1,258,050	111,741	23,232	11,509	-	22	1	-	-	-	-
34 - U.S. Great Lakes to Med., Black Sea, Portugal, Spain, (So. of Portugal) Morocco (USSR ports excl.)	74,007	211,731	3,152	12,828	-	-	17	-	-	-	-	-
56 - U.S. Great Lakes to Red Sea, India, Persian Gulf, Indonesia, Malaysia, Singapore	27,413	-	-	19	-	-	-	-	-	-	-	-
TOTAL EXPORTS	11,975,108	61,457,681	5,789,383	439,506	367,204	25,987	47	-	-	-	-	-

SOURCE: DEPT. OF COMMERCE, MARITIME ADMINISTRATION

USSR-FLAG SHARE OF COMMERCIAL CARGO TONNAGE CARRIED IN THE U.S. OCEANBORNE FOREIGN TRADE
JANUARY - SEPTEMBER, 1974
(Excludes Cargo Between U.S. And USSR Ports)

TRADE ROUTES	TOTAL LONG TONS			USSR LONG TONS			USSR PERCENT		
	Liner	Nonliner	Tanker	I M P O R T S			Liner	Non- Liner	Tanker
				Liner	Nonliner	Tanker			
5 - U.K. & Ireland to U.S. No. Atlantic	736,827	343,194	267,361	-	-	-	-	-	-
7 - W. Germany (North Sea) to U.S. No. Atlantic	738,071	1,589,669	344,948	88,101	239	-	12	-	-
8 - Netherlands, Belgium to U.S. No. Atlantic	970,821	1,016,164	2,104,028	33,635	2,452	-	3	-	-
10 - Med., Black Sea, Portugal, Spain, Morocco and Azores (USSR ports excl.) to U.S. No. Atlantic	932,760	402,175	7,515,889	61	-	-	-	-	-
11 - U.K. & Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.) to U.S. So. Atlantic	541,014	1,227,460	121,403	-	-	-	-	-	-
12 - Far East to U.S. Atlantic	1,832,858	2,086,015	79,391	1,591	37,278	262	-	1	-
13 - Med., Black Sea, Portugal, Spain (So. of Portugal) Morocco & Azores (USSR ports excl.) to U.S. So. Atl./Gulf	335,913	429,297	4,416,665	-	-	-	-	-	-
17 - Indonesia, Malaysia, Singapore to U.S. Atl./Gulf/Pacific	806,745	115,579	9,298,000	46,225	9,047	-	6	8	-
21 - U.K., Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.) to U.S. Gulf	1,252,018	1,623,153	1,212,782	5,656	52,211	42,737	-	3	4
29 - Far East to U.S. Pacific, Hawaii, Alaska	2,161,959	2,421,147	136,646	170,395	14,491	-	7	-	-
32 - U.K., Ireland, Cont. Europe (No. of Portugal) (USSR ports excl.) to U.S. Great Lakes	122,536	1,210,347	20,964	8,650	9,834	-	7	-	-
34 - Med., Black Sea, Portugal, Spain (So. of Portugal) Morocco (USSR ports excl.) to U.S. Great Lakes	23,256	11,063	6	5,076	-	-	22	-	-
56 - Red Sea, India, Persian Gulf, Indonesia, Malaysia, Singapore to U.S. Great Lakes	7,305	2,152	-	-	-	-	-	-	-
TOTAL IMPORTS	10,462,083	12,477,415	25,518,083	359,390	125,552	42,999	32	12	-

SOURCE: DEPT. OF COMMERCE, MARITIME ADMINISTRATION

OCEAN FREIGHT RATES AND THEIR IMPACT

It has been the traditional practice of major ocean carriers to band together in conferences on important trade routes for the purpose of limiting competition, and establishing a pattern of rates that will insure reasonable profits. Traders have been willing to accept these "cartels" because they were offered a regular service at somewhat predictable rates.

In 1916, after 2 years of hearings, Congress found that if discriminatory steamship practices in the U.S. foreign commerce continued, it would lead to possible unreasonable prejudice against the small exporter or importer. Following these and other hearings that were subsequently held, Congress passed the Shipping Act of 1916 which assigned certain responsibilities to the Federal Maritime Commission to review all agreements between carriers and approve only those that were found not to be unjustly discriminatory or unfair.⁸ In its regulatory capacity, the Commission has approved conference agreements in most of the major U.S. foreign trades. Where competition was intense, Congress has provided for the approval of a "dual-rate system" that allows the conference carriers to contract with merchants for exclusive patronage and in turn to offer regular service at reduced rates. Under the Shipping Act this rate differential may not exceed 15 percent.⁹

Historically, these provisions have allowed both conference and non-conference carriers to exist side by side. Since the early 1970's, however, a new element has appeared which is now threatening to upset this traditional balance: The appearance of large numbers of Communist Bloc merchant ships in world seallanes. Since 1972, the U.S.S.R. merchant fleet has expanded very rapidly and at this stage no one can foresee to what extent this expansion will continue or where it will end. It is this doubt that leads to a cause for great concern in the arena of international shipping.

On entering new trades, the Soviets have tended to establish rates at a level that will attract sufficient cargoes to maximize hard currency earnings. The Commission in its studies of rate practices has found that the Soviets, in each major trade, have established rate patterns which enable them to achieve that objective. The Soviets have operated outside of most of the major conferences in the U.S. maritime trades, notwithstanding the fact that they have participated in numerous discussions with U.S. officials on possible conference membership.¹⁰ Conversations with Soviet officials indicate that they have little intention to join a shipping conference until such time as it is clearly to their advantage.

The failure of the Soviets to participate within the conference framework has resulted in an uneasiness on the part of other carriers, and a tendency by at least some of these operators to resort to a variety of tactics in an effort to secure sufficient cargoes for their own vessels. In the Far East trades, in particular, the Soviets are

⁸ Sec. 15, Shipping Act, 1916 (46 U.S.C. 814).

⁹ Sec. 14b, Shipping Act, 1916 (46 U.S.C. 813a).

¹⁰ FESCO was admitted to the Far East Conference on July 16, 1975, to implement its new service between U.S. gulf ports and the Far East. Black Sea Steamship Co. joined the west coast of Italy, Sicilian, and Adriatic ports/North Atlantic Range Conference (W.I.N.A.C.) on July 17, 1975.

continuing to add new vessels to an already alleged overcapacity situation in the face of a shortage of available cargoes.

The Soviets have established rate levels substantially below conference rates. They have endeavored, however, to avoid the position of being the lowest nonconference carrier. The fact that another nonconference carrier may operate with very limited capacity appears to have no appreciable effect on the Soviet position. Another practice employed by the Soviets, as well as other nonconference carriers, is the use of the "per container," "freight all kinds," or "consumer mixed commodity" rates. While all carriers have the privilege to quote and file rates on this basis, it has not as yet become general practice in the conference trades since many vessel operators hold to the concept that the higher valued commodities should—to some degree—subsidize the rates on lower valued commodities. As containerization continues to expand and become a major force, it is possible that per container rates will become more generally accepted. By employing these container load rates the Soviets, and other independents, are able to attract cargoes with rates that are effectively far below those of the conference carriers.

At the present time, the inbound Hong Kong/U.S. Pacific coast trade, and to a lesser extent the inbound Japan/West Coast trade are experiencing a short supply of available cargoes; thereby heightening the difficulties of an already dismal competitive situation. The Commission has been informed that over 50 percent of the Hong Kong cargo is moving on nonconference lines. In some instances in the Japan trade, space utilization has fallen below the 30-percent level. Should these conditions continue over an extended period of time, vessel layups are to be expected. As the Soviets continue to add to their capacity, it will become increasingly apparent that something will have to be done to restore stability to the trades.

In a trade area where the Soviets are particularly active—the U.S. Pacific Coast/Japan trade—FESCO accounted for 10 percent of the total outbound liner trade tonnage of 2 million long tons for the period of January–September, 1974. Inbound in the same trade area, the Soviet-flag share totaled 11 percent of the total liner traffic of 1.4 million long tons for the same period.¹¹ Prior to 1973, U.S.S.R. participation was negligible.

In the U.S. Atlantic coast/European trades, Baltic Steamship Co. filed its first tariff with the Commission to become effective on January 22, 1973. Since that time, the Soviets have evidenced a steadily increasing presence in these trades. Recently, Balt-Atlantic introduced an interim full trans-Atlantic container service. The new service offers 368 TEU at a sailing frequency of 10 days in each direction on the North Atlantic. Prior to this, Baltic only operated ships with a 131 TEU capacity. A significant new phase will be the addition of two roll-on/roll-off containerhips of up to 1,100 TEU capacity by late 1975, which will add considerably to the Soviet capability in these trades.¹² Another important area where the Soviets have successfully penetrated the market is in the U.S. North Atlantic/West German liner trades where their share totaled 13 percent of the

¹¹ Department of Commerce, Maritime Administration.

¹² Containerization International, April 1975, p. 27. TEU refers to 20-foot equivalent container units.

outbound cargo movements and 12 percent of the inbound traffic during the period January–September, 1974.¹³

The Commission has conducted several meetings with Soviet maritime officials during which their intentions for continued expansion have been discussed. From these conversations, it is evident that the Soviets have established no upward limits on the growth of their merchant marine. The Soviets insist that they are unable to depend upon another nation's merchant marine to transport their foreign trade. They maintain that the principal reason for the present and planned growth of their fleet is to serve the Soviet-American trade which is expected to grow at an unprecedented rate in the next few years. While this trade is developing, the Soviets indicate that they will continue to employ added new vessels where they can be best utilized.

INTERNATIONAL SHIPPING CONFERENCES AND SOVIET MARITIME ACTIVITIES

The Shipping Act of 1916 was an outgrowth of lengthy hearings and investigations. At that time, and later in 1961, Congress found that the conference system if honestly and fairly conducted would provide greater regularity and frequency of service at lower cost. It was also concluded that the system would result in greater stability and a more uniform rate structure. Through the Shipping Act of 1916, Congress sought to eliminate secret arrangements and underhanded methods of discrimination, to offer a better distribution of sailings, and to provide a pattern of rates that would enable American exporters and importers to compete in foreign markets. Under the act, the Federal Maritime Commission has important areas of responsibility insofar as the American foreign trade industry is concerned. It is obligated to undertake whatever action is appropriate and in accordance with the provisions of the Shipping Act to insure that conditions conducive to the advancement of the U.S. foreign trade are developed and maintained.

There are several potential advantages to the Soviets favoring their participation in the liner conferences serving U.S. trade areas. Some of these advantages are:

1. A voice in formulating policy and developing rate structures in a particular trade.
2. Where a conference dual-rate system is in effect, the Soviets can gain access to a directory of shippers signing the merchant's freighting agreement. These merchants would be authorized to ship their cargo on Soviet vessels at the lower contract rates.
3. A contribution to and a consequent benefit from stable rate conditions in the trade.
4. The possibility of destructive rate wars—that in the long run are harmful to everyone concerned—would be minimized.
5. The avoidance of complaints by American Merchant Marine operators, labor unions and ultimately, their representatives in Congress. Such complaints—and those arising from carriers of other nations—could generate formal hearings and investigations before the Federal Maritime Commission. As Conference members, should such hearings or investigations take place, the Soviets

¹³Department of Commerce, Maritime Administration.

would benefit from conference representation, thereby avoiding direct legal confrontation.

The Soviets have never indicated that they will not join international shipping conferences. They are in fact members of several liner conferences; most of which operate in the foreign to foreign trades. They tend to adopt a "wait and see" attitude in such matters. One of the primary reasons why the U.S.S.R. began building up its merchant fleet was to reduce the heavy drain on its hard currency reserves, and they can be expected to continue to seek to maximize earnings from shipping by resorting to competitive rates. The Soviets have been exporting diamonds, gold, oil, and other commodities for hard currency to cover trade and balance-of-payments deficits with the West for domestic economic needs. Another reason why the Soviets may be wary of joining shipping conferences can be traced to their general reluctance to report trade statistics to a foreign body. Moreover, the Soviets do not compile and report statistical information in the same manner in which Westerners do.

In general, the Soviets become less reluctant to join shipping conferences once they realize that it is clearly in their own best interest. They have joined conferences in the past following protests about their rate-cutting practices. They tend to be good businessmen and if they find that the advantages outweigh the disadvantages of joining a conference, they will usually opt to do so.¹⁴ The Soviets maintain that they have had to compete for cargoes through rate-cutting and other practices. Because of the alleged malpractices engaged in by other carriers, the Soviets stress that they have been forced into a situation where they have had to resort to these rate-cutting methods. There may be some evidence to support this contention in that the Soviets recently have filed FAK—freight all kinds—rates to "remain competitive" with "those carriers engaged in malpractices."

A related issue that should be considered in the context of any discussion about the role of international shipping conferences concerns UNCTAD's proposed "Code of Conduct for Liner Conferences." This code would, in effect, establish rules and procedures to govern the activities and operations of the shipping conferences in world trades. Two of its chief provisions are also areas of major exception taken to the code itself. These are:

1. The code establishes a cargo-sharing formula where 80 percent of the ocean commerce would be split evenly between the vessels of the national shipping lines at both ends of the trade with the remaining 20 percent to be shared by third-flag carriers. An objection to this provision relates to the fact that it would tend to constrict world maritime trade by segmenting it into regional shares.
2. The code's rules would regulate carrier participation in the liner conferences. This provision could stimulate the formation and proliferation of shipping cartels.

¹⁴ This position was affirmed by Soviet representatives in informal discussions in 1974 between a Commission economist and shipping officials of the Baltic Steamship Co. in Leningrad and representatives of Sovinflat in Moscow. Sovinflat acts as the general agent for the 16 Soviet steamship companies over all matters connected with servicing Soviet ships in foreign ports.

As of July 24, 1975, only nine nations had become contracting parties to the code.¹⁵ Officially, the code cannot enter into force until 6 months following the date when a minimum of 24 countries representing 25 percent of the world's gross tonnage—18,226,166 tons—have become “contracting parties” to the Convention.

The United States finds the Code unacceptable and has already indicated that it does not intend to ratify it for two basic reasons:

1. On substantive grounds, the Code would be harmful to U.S. commercial interests; it is inconsistent with our traditional regulatory principles; it would impose additional cost burdens and inefficiencies on the world ocean transport system; it is dubious that it would materially assist a majority of the developing countries; and finally it simply is not acceptable text from the standpoint of legal clarity.

2. On procedural and political grounds, the United States considered it important to express its dissatisfaction with the results of the UNCTAD group system for negotiating an international convention, the inadequate time devoted to alternate proposals—especially some offered by the United States—the absence of any final review of the text by a legal drafting group as is customary in the elaboration of an international convention, and finally the possible harmful precedent of a weak U.S. position in this instance on subsequent negotiation in UNCTAD, and other U.N. bodies, for other codes that may be considered.

The Soviets, on the other hand, have seemingly sought to gain potential political advantage with the less-developed countries in UNCTAD negotiations by lending their support to the code.

POSSIBLE LEGISLATIVE SOLUTIONS

The proliferation of predatory carriers operating in U.S. sealanes and charging rates on certain high-value commodities that may often be less than compensatory on a commercial cost basis poses a serious threat to the stability of United States and world shipping services.

Rate-cutting practices are a continuing problem. In the late 1960's, turmoil existed in the North Atlantic trades. Malpractices were occurring and unwarranted rate reductions were being made. The advent of containerization only exacerbated the situation since it multiplied cargo carrying capacity beyond the needs of the trade and led to more rate-cutting than before. While the North Atlantic trades appear more stable today, the problem has since spread to the trans-Pacific trades. The overtonnaging in both regional trade areas leading to an overabundance of available cargo capacity has now been magnified by the entry into the trades of new Communist Bloc carriers competing for cargoes.

The stage has been set for shippers and carriers alike to resort to practices detrimental to ocean transportation in our trades. There are indications that rate-cutting practices of some carriers of between

¹⁵ These countries include: Bangladesh, Chile, Ethiopia, Ghana, Pakistan, Sri Lanka, Togo, The Gambia, and Venezuela representing only about 1.3 percent of the world's tonnage. Several other countries—including Belgium, France, West Germany, and the U.S.S.R.—signed the code subject to ratification just before the deadline on June 30, 1975. The list of signatories did not include a number of countries with large merchant fleets among which are: Japan, Norway, Sweden, the U.K. and the U.S.

5 and 35 percent below conference levels have become prevalent. The Commission advocates rates as low as economically feasible to permit our importers and exporters to compete in international markets, but at the same time sufficiently compensatory to encourage carriers to offer regular and efficient transport services and to sustain a financially viable steamship industry.

Some contend that the rate-cutting policies being practiced by these predatory carriers can be countered through a strict enforcement of the Shipping Act. The advocates of this approach indicate that 18 (b)(5) of the Shipping Act of 1916 already provides sufficient authority for the Federal Maritime Commission to "disapprove any rate or charge filed by a common carrier by water in the foreign commerce of the United States or conference of carriers, which, after hearing, it finds to be so unreasonably high or low as to be detrimental to the commerce of the United States." By employing this existing provision in an expeditious manner, it is maintained that the Commission could take actions to disapprove predatory rates. Those who discard this approach point out that the type of hearing required under the provisions of 18 (b)(5) requires that each respondent be accorded the full measure of protection under established rules and procedures; and that under these circumstances, the time consumed to conduct hearings of this nature would be of such duration that immeasurable harm to our foreign commerce could result or at least continue unchecked during these lengthy proceedings. Moreover, experience has shown that whenever foreign-flag carriers are subpoenaed to submit cost data related to rate levels, their immediate reaction is to raise national prohibitions against the submission of this type of information to a foreign government.

Another point of view contends that given the tendency of certain carriers to engage in predatory practices for profit or political gain in our foreign trades, unless strong and immediate corrective measures are undertaken, the United States will find itself in an unprotected position without a strong merchant fleet and in a situation where even the nonpredatory cross-traders will be driven from the seas. Accordingly, it is suggested that some form of bilateral arrangements be established at an early date to exclude most of the third-flag participation in U.S. foreign commerce. Many of the less-developed and certain other countries seeking to develop a merchant marine rapidly have been instituting this practice. Those who object to the adoption of this practice as a national policy maintain it could result in a swift reaction from many of our Western trading partners, and that it would be contrary to our own best interests in that it would tend to discourage competition to a degree detrimental to the operations of our exporters and importers who are forced to compete in foreign markets.

The Commission has consistently supported a bill submitted by Senator Daniel K. Inouye, of Hawaii, in the 93d Congress and which has again been introduced by him before the 94th Congress as S. 868. S. 868 has as its primary objective the regulation of the rate-cutting practices of third-flag carriers operating in the U.S. trades. The bill would require that non-national-flag carriers demonstrate that their rates are compensatory on a commercial cost basis. These carriers would be prohibited from charging rates lower than the lowest

corresponding rate charged by national-flag carriers in the U.S. trades unless such rates could be justified on a commercial cost basis.

Objections to the bill have been raised on the grounds that it might lead to higher rate levels because of the limitation placed upon competition: That it would align rates at a given level and place the burden of justification on those carriers filing lower rates. It is feared that the direct impact of this legislation would likely fall on U.S. shippers and consumers if a special burden were placed on those filing lower rates. Moreover, it is said that the legislation, if applied broadly, could eliminate competition based on divergence of rates, thereby removing a barrier to higher rate levels and monopolistic controls. An added objection to S. 868, in its present form, maintains that it goes further than necessary to deal with the problem of third-flag carriers and places the United States in potential violation of certain obligations under its Friendship, Commerce, and Navigation Treaties.

It is not disputed that the primary purpose of the bill in seeking to eliminate predatory rate practices in the U.S. foreign trades is well motivated and laudable, since it is generally agreed that these practices pose a serious threat and are leading to an increasingly troublesome situation in the international waterborne commerce of the United States. While the Commission strongly supports legislation which meets the objectives of S. 868, it feels that amendments should be made to the proposed legislation in order that the level of rates will be tied to the conference system; the proven stabilizer in international trade.

Another suggested approach to deal with the problems created by non-national-flag carriers operating in U.S. seallanes might be to attempt to resolve the issues by means of a rulemaking procedure conducted by the Federal Maritime Commission in which all parties could participate.

Finally, a solution might be sought in the acceptance of an international convention conceived along the lines of the "Code of Conduct for Liner Conferences" proposed and endorsed by the less-developed countries. However, it is unlikely that this Convention will be adopted either in its present form or in the foreseeable future. Certainly, the code as it now stands would require extensive modification and clarification in order to serve as a workable basis for international shipping relations. In view of the wide divergence of opinion exposed by the recent UNCTAD negotiations, it seems unlikely that a convention could be drafted that would be acceptable to a broad enough segment of the international trade community to be effective and enforceable.

APPENDIXSOVIET TARIFFS ON FILE WITH THE FEDERAL MARITIME COMMISSION

The following freight tariffs published by Soviet ocean carriers, with a brief summary of the trade area served, are presently on file with the Federal Maritime Commission:

Murmansk Steamship Company also doing business
as Arctic Line

Arctic Line FMC-6

From: All Polish, Baltic Sea, Scandinavian ports, Murmansk, Hamburg/Bordeaux range, United Kingdom and North Spanish ports.

To: All U.S. Great Lakes and St. Lawrence River ports.

Arctic Line FMC-7

From: U.S. Great Lakes and St. Lawrence River ports.

To: Scandinavian and Baltic ports, Murmansk including Gdansk, Gdynia and Leningrad from Hamburg, Germany to and including Lisbon, Portugal and all ports in England, Scotland, Wales, Northern Ireland and the United Kingdom.

Black Sea Steamship Company also doing business
as Black Sea Canada Line

Black Sea Canada Line is also known as Black Sea Steamship Company effective June 15, 1973, and is a member of the following conferences which have tariffs on file with the Commission.

Mediterranean-USA/Great Lakes - Westbound Freight Conference FMC-9

From: All ports in Mediterranean Sea (including Marmara Black Sea, and Adriatic ports), Iberian Peninsula and African ports (including Morocco).

To: U.S. Great Lakes ports.

American Great Lakes-Mediterranean - Eastbound Freight Conference FMC-11

From: U.S. Great Lakes ports.

To: Atlantic Coast ports on Iberian Peninsula, European, Asian, and African ports on the Mediterranean (including Black Sea) Atlantic Coast African ports (including but not south of Casablanca).

Black Sea Steamship Company also publishes independent tariffs FMC 1 and 2. FMC 1 refers to service from U.S. Great Lakes and St. Lawrence River ports to East African, Gulf of Aden, Red Sea, and Persian Gulf ports. The tariff was effective on October 3, 1975. FMC 2 applies to service between the U.S. Atlantic to Black Sea ports in the USSR (Constance/Novorossiysk range). This tariff was effective on February 20, 1975.

Baltic Shipping Company

Baltic Shipping Company, also doing business as Balt-Atlantic Line, has tariffs on file with the Commission covering the following trades:

Balt-Atlantic Line FMC-13

From: U.S. North Atlantic (Eastport, Maine/Hampton Roads)

To: Ports in Bordeaux/Hamburg Range

Balt-Atlantic Line FMC-10

From: Bordeaux/Hamburg Range

To: U.S. North Atlantic (Eastport, Maine to Hampton Roads)

Balt-Atlantic Line FMC-14

From: U.S. North Atlantic (Eastport, Maine to Hampton Roads)

To: United Kingdom

Balt-Atlantic Line FMC-15

From: United Kingdom

To: U.S. North Atlantic

Balt-Atlantic Line FMC-5

From: U.S. North Atlantic (Eastport, Maine/Cape Hatteras)

To: Baltic Sea ports

Balt-Atlantic Line FMC-7

From: Baltic Sea ports

To: U.S. Atlantic ports

Baltic Shipping Co., FMC-8

From: U.S. South Atlantic and Gulf

To: French Atlantic Ports/Hamburg Range and United Kingdom

Baltic Shipping Co., FMC-12

From: French Atlantic/Hamburg Range and United Kingdom

To: U.S. South Atlantic and Gulf

Baltic Shipping Co., FMC-9

From: U.S. South Atlantic and Gulf

To: Scandinavia and Baltic Ports

Baltic Shipping Co., FMC-3

From: Caribbean Islands, West Indies, North Coast of South America, East Coast of Central America, and Mexico, excluding Cuba

To: U.S. South Atlantic and Gulf

Far Eastern Shipping Company also doing business
as FESCO Pacific Lines and FESCO Straits Pacific Line

FESCO Pacific Lines, FMC-2

From: Ports in the states of Washington, Oregon, California and Alaska and overland common points. 1/

To: Kobe, Nagoya, Osaka, Yokohama and Tokyo, Japan and Nakhodka, USSR

FESCO Pacific Lines, FMC-3

From: Vladivostok, Nakhodka, USSR

To: Ports in the states of Washington, Oregon and California and overland common points

1/ Overland common points are destination and/or origin points in North Dakota, South Dakota, Nebraska, Colorado, New Mexico, and states East thereof. Where specified, special port to port rates are shown when cargo originated in or destined to overland common points territory.

FESCO Pacific Lines, FMC-4

From: Ports in the states of Washington, Oregon and California
and overland common points

To: Hong Kong

FESCO Pacific Lines, FMC-5

From: Hong Kong

To: Ports in the states of Washington, Oregon and California
and overland common points

FESCO Pacific Lines, FMC-6

From: Ports in the states of Washington, Oregon and California
and overland common points

To: Manila and various other Philippine ports

FESCO Pacific Lines, FMC-7

From: Manila and other base ports

To: Ports in the states of Washington, Oregon and California
and overland common points

FESCO Straits Pacific Line, FMC-8

From: Ports in the states of Washington, Oregon and California
and overland common points

To: Port Klang and Penang, Federation of Malaysia and
Singapore

FESCO Straits Pacific Line, FMC-9

From: Port Klang and Penang, Federation of Malaysia, Singapore

To: Ports in the states of Washington, Oregon and California
and overland common points

FESCO Straits Pacific Line, FMC-10

From: Ports in the states of Washington, Oregon, California
and overland common points

To: Bangkok and Kohsichang, Thailand

FESCO Straits Pacific Line, FMC-11

From: Bangkok and Kohsichang, Thailand

To: Ports in the states of Washington, Oregon, and California and overland common points

FESCO Straits Pacific Line, FMC-12

From: Ports in Washington, Oregon and California and overland common points

To: Belawan and other ports in Sumatra, Java and Borneo

FESCO Straits Pacific Line, FMC-13

From: Sumatra between Langsa and Indragiri (both inclusive)

To: Ports in the states of Washington, Oregon and California

FESCO Pacific Lines, FMC-15

From: Ports in Japan

To: Ports in Washington, Oregon and California and overland common points

In two recent developments, FESCO joined the Far East Conference (FMC-8) on July 16, 1975 to implement its service from U.S. Gulf ports to Far Eastern ports and Black Sea Steamship Company was admitted to W.I.N.A.C. Conference (FMC-1) on July 17, 1975 to provide service from Italian West Coast, Sicilian, and Adriatic ports to U.S. North Atlantic ports. As members of these conferences the Soviet carriers are required to abide by the rates, rules, and regulations of the applicable conferences.

U.S.-U.S.S.R. BILATERAL AND TECHNOLOGICAL MARITIME DEVELOPMENTS

(By Robert J. Blackwell¹)

BACKGROUND

In April of 1971 Premier Kosygin in his report on the current Soviet 5 Year Plan, expressed a desire to expand commercial relations with the industrially developed capitalist countries of Europe. He then remarked, "Nor do we rule out developing economic relations with the United States of America to a point where their extent would be more consistent with the economic potential of the two countries."

When this change in political and economic climate between the United States and the Soviet Union occurred, a mutual desire for expanded trade between them ensued, and it was logical that cooperation in the area of maritime transport, a prime element in the expansion of trade, would follow in the effort to facilitate the movement of goods between the two countries.

There had occurred a number of official and unofficial maritime contacts between the two nations over a period of 10 years, but prior to the political and economic change hinted at in Kosygin's remark, the relatively few commercial transactions between the Soviet Union and the United States had been handled on an ad hoc basis and there was uncertainty as to access to ports and an unnecessarily long and complicated port clearance procedure in both countries, to name but two serious hindrances to a routine, regularized trading environment.

It had to be recognized on both sides that a maritime agreement would be mutually beneficial. The Soviets realized that a maritime agreement would provide them continuing access to U.S. feed grains critical to their plans to increase the protein content of the Russian diet. They realized that future access to a broader range of American goods and services would also be fostered and the U.S.S.R. would gain cargoes for its rapidly expanding merchant fleet. The United States realized a shipping agreement would facilitate the export of surplus grain crops to a new market and that these sales would contribute to the U.S. balance-of-payments position as would the sale of the broader range of commodities that would be exported to the U.S.S.R. in the future. In addition, the use of U.S.-flag ships rather than third flag vessels would reduce the outflow of U.S. dollars and the development of a new market would increase job opportunities in shipping and agriculture as well as in other sectors of the economy.

At a meeting held in July 1969 between representatives of the Ministry of the Soviet Maritime Fleet and the U.S. Maritime Administration, Mr. Timofey Guzhenko, who was made Merchant Marine

¹ The author is Assistant Secretary for Maritime Affairs of the Department of Commerce.

Minister that year, expressed the policy of the Soviet Union regarding trade and shipping. He observed that the limited trade then existing between the United States and the Soviet Union was being transported by ships of third countries and that this was not logical. He also stated that both the United States and the Soviet Union had suitable ships to carry the reciprocal trade and accordingly, the trade between the two countries should be transported by the ships of the trading partners. The tenor of Mr. Guzhenko's remarks was that the Soviets favored free access to their ports if their vessels were accorded equal treatment by the reciprocating nation.

At the International Labor Conference Plenary Maritime Session of the ILO, held in Geneva in October 1970, Vladimir Tikhonov, Vice Minister of Soviet Maritime Navigation, expressed the Soviet attitude with respect to his country's trade with the United States in terms similar to Guzhenko's. He conveyed to the American delegation, which was headed by the Assistant Secretary of Commerce for Maritime Affairs, the desire of his Government to establish unrestricted trading relations between the two nations for the mutual benefit of their respective merchant fleets.

THE ISSUES

In 1971 preparations began for the negotiation of an agreement on maritime matters. The most crucial issues to be negotiated with the Soviets were port access, cargo sharing, and freight rates.

Before these issues are discussed in detail, however, attention must be given to the passage of the Merchant Marine Act of 1970. Heretofore the U.S.-flag bulk cargo fleet had been unable to compete effectively in the carriage of export and import dry and liquid bulk commodities. The extension of maritime aids (in this case Operating Differential Subsidy) to such vessels under the provisions of the 1970 Act permitted this segment of the American merchant fleet to meet foreign competition at reasonable world market charter rates. The Act was designed to promote a larger, newer, more competitive and efficient U.S. Merchant Marine and it was enacted quite apart from any considerations of maritime detente or cooperation with the Soviet Union, but it was essential that the U.S.-flag bulk cargo fleet be able to compete in the world market since the bulk trade is the predominant trade between the United States and the Soviet Union and the most profoundly affected by the U.S.-U.S.S.R. Maritime Agreement.

PORT ACCESS

After the Soviets had made clear their desire to establish unrestricted trading relations, President Nixon, on August 20, 1971, decided that eligible Soviet shipping could be permitted to enter U.S. ports on the basis of 14 days' advance notice provided the Soviets reciprocated by granting U.S.-flag vessels the same privilege. Then in April 1972, agreement was reached to permit entry of all vessels of the other into 40 ports in each country subject to 4 days' advance notice of the planned entry, and in October the lists of specific ports to be open were agreed upon.

CARGO SHARING

The cargo sharing issue initially was circumvented in accordance with the traditional view on that subject, namely, that the United States disapproves of exercising direct governmental control over the routing of "normal commercial cargoes" to assure equal access for U.S. flag vessels unless such cargoes are owned or financed by the government. This position, however, failed to recognize that Soviet-controlled cargoes, which all grain cargoes were to be, were not directed in the spirit of free enterprise, thus making application of traditional U.S. policy on cargo sharing unworkable. Ultimately, the President instructed that any understanding in the area of national flag cargo carriage should include a provision to the effect that implementation of the understanding would be contingent on agreement to be reached between the two sides in an effective mechanism to ensure equal participation. This instruction altered traditional U.S. policy regarding cargo sharing, at least as far as the Soviet undertaking was concerned, and made the negotiation of a cargo sharing arrangement possible.

An expression of agreement by both sides on the issues of equal access and equal sharing of cargoes was necessary prior to attaining a meaningful bilateral shipping agreement and to this end the U.S. delegation tabled an outline of the underlying principles it considered essential in this regard calling for the approximate equal participation in the trade between the two nations by their respective fleets, and the carriage of a substantial part of the reciprocal trade in the national flag vessels of the two countries.

After discussing these principles each nation obligated itself to give equal access to the vessels of the other in the carriage of controlled cargoes moving between the two nations. The Soviet obligation to assure equal and substantial United States and Soviet carriage of Soviet-controlled imports of bulk cargoes was made subject to prior agreement by the parties on an acceptable rate structure.

Article 7 of the Agreement and the relevant operating document (Annex III) codify this understanding as follows:

While recognizing the policy of each Party concerning participation of third flags in its trade, each party also recognizes the interest of the other in carrying a substantial part of its foreign trade in vessels of its own registry, and thus both Parties intend that their national flag vessels will each carry equal and substantial shares of the trade between the two nations in accordance with Annex III which is a part of this Agreement.

Each Party undertakes to ensure that its controlled cargo is directed in a manner which

(i) provides to vessels under the flag of the other Party an accountable liner share and an accountable charter share equal in each category to those vessels under its flag, and which continually maintains parity during each accounting period, and

(ii) is consistent with the intention of the Parties that their national flag vessels will each carry not less than one-third of the bilateral cargoes.

With agreement on the above one of the primary objectives of the U.S. negotiating position was achieved, namely, that U.S. flag

vessels would share equally with Soviet flag vessels in the carriage of controlled cargoes in the trade between the two countries.

FREIGHT RATES

The freight rate issue is a highly complex and technical one and this paper does not purport to cover the matter in great detail. A general overview, however, is called for since the rate issue was an essential element of the negotiations leading to the Agreement.

Basically, the United States sought a level of freight rates which would at least reach a break-even point for U.S.-flag vessel operators. Because of the higher operating costs of U.S.-flag bulk and other vessels the payment of some Operating Differential Subsidy (ODS) to participating U.S.-flag operators was assumed; this payment offsets the cost disparity between operating a ship under the U.S. flag and operating it at considerably lower costs under a foreign flag.

Resolution of the rate issue was crucial to the implementation of the Agreement; without a satisfactory rate U.S.-flag vessels would be unable to share in the carriage of Russian cargoes.

On the day the U.S.-U.S.S.R. Maritime Agreement was signed, the issued was resolved. The initial solution provided for the Soviets to pay the market freight rate plus a premium over and above these fixed rates which would keep ODS at the lowest possible level. Subsequently, an index system which reflects world market conditions was developed and implemented.

Needless to say, the Soviet purchases of large amounts of U.S. grain are always influential in freight rate negotiations, and the process of arriving at a mutual understanding on rates is also affected by a fluctuating world charter market which makes rate forecasting difficult. Additional factors entering the equation involve the availability of U.S.-flag vessels and the complex problems involved in the certification of non-availability of U.S. tonnage.

SELECTED PROVISIONS AND EFFECTS OF THE AGREEMENT

The Agreement calls for the Designated Representatives of each side, a representative of the Maritime Administration for the United States and a representative from the Ministry of Merchant Marine for the U.S.S.R., to meet annually for a comprehensive review of the movement of bilateral cargo and "for such other purposes related to the Agreement as may be desirable."

Some of the items which fall into the latter category are bulk cargo rates, charter party terms, port charges, visa requirements, the determining and policing of the one-third cargo sharing provisions of the Agreement, and the establishment of liner freight rates for accountable share calculations.

In the early stages of the Agreement's implementation, an imbalance developed in the carriage of liner cargoes in favor of Soviet vessels. As a result, U.S.-flag vessels did not carry a "substantial" share, nor did they achieve "parity" with Soviet flag vessels.

To correct this it was agreed that the following steps would be taken.

- (a) All controlled liner cargoes would be offered to vessels of the nation having the smaller share of liner cargoes until parity was achieved.

(b) The public entity participating in determining the routing of specific cargoes would assume the obligation and take all necessary and appropriate measures for routing the United States share to ports served by United States flag ships.

(c) Specific dates would be set by which each side was to furnish the other with freighted bills of lading or manifests to permit continuous monitoring of United States and Soviet flag carriage to insure the parity required by the Agreement.

(d) The parties agreed on a formal solicitation to engage an independent data processing firm to compile information for the use of both sides in monitoring shipments.

As far as bulk shipments are concerned since the signing of the Agreement, U.S.-flag ships have been able to participate in the carriage of over 24 million metric tons of U.S. grain purchased by the Soviet Union. American flag ships carrying 5.3 million metric tons of grain have made 154 voyages to Soviet ports since 1972. As of July 1, 1975, 42 companies held short term Operating Differential Subsidy (ODS) agreements covering 79 vessels for the carriage of agricultural commodities from ports in the United States to ports in the Soviet Union.

Since the beginning of the program through July 11, 1975, ODS operators have accrued \$58.4 million, of which \$47.4 million has been paid. In addition to exporting grain cargoes, those U.S.-flag vessels were able to transport into the United States approximately five million tons of crude oil and petroleum products.

Participation by national flag vessel, since the beginning of the program is as follows (Tables I, II, III, and IV).

TABLE I.—U.S./U.S.S.R. bilateral trade accountable share—liner cargo

	U.S. flag	U.S.S.R. flag
Nov. 22, 1972–Dec. 31, 1974	\$17,745,255	\$16,034,687
Jan. 1, 1975–May 31, 1975	6,866,831	6,972,850
Totals	24,612,086	23,007,537

As of May 31, 1975—Net balance in favor of U.S.-flag liners \$1,604,549.

TABLE II.—U.S./U.S.S.R. bilateral trade substantial share, liner cargo exports & imports, Nov. 22, 1972–Feb. 28, 1975 (tons of 2,240 lbs.)

	U.S. flag	U.S.S.R. flag	Third flag	Total
1972/1973	6,271	143,276	118,530	268,077
1974	122,192	64,944	51,587	238,723
1975 (Jan./Feb.)	17,448	10,362	10,607	38,417
Total	145,911	218,582	180,724	545,217

NOTE.—Cargo turned down by U.S.-flag vessels during total period, 51,501.

TABLE III.—U.S./U.S.S.R. bilateral trade bulk carriage Nov. 22, 1972–June 30, 1975
(thousands of metric tons)

	U.S. flag	U.S.S.R. flag	Third flag	Total
1972/1973	4,260.6	3,289.7	13,934.2	21,484.5
1974	1,607.3	764.2	2,021.9	4,393.4
1975 (Jan.–Jun.) (grain only)	345.0	646.8	391.1	1,382.9
Total	6,212.9	4,700.7	16,347.2	27,260.8

TABLE IV

U.S. - U.S.S.R. MARITIME AGREEMENT
SCHEDULE OF RESULTS BY FLAG

I. BULK CARGOES - Accountable and Substantial Shares

a. Grain

	U.S.	(000's Metric Tons)		
		<u>Soviet</u>	<u>Third</u>	<u>TOTAL</u>
First Accounting	3,502.1	3,236.1	12,843.7	19,581.9
Period (7/1/72 - 12/31/73)	(17.9%)	(16.5%)	(65.6%)	(100.0%)
Second Accounting	1,474.7	713.8	903.4	3,091.9
Period (1/1/74 - 12/31/74)	(47.7%)	(23.1%)	(29.1%)	(100.0%)
Third Accounting	345.0	646.8	391.1	1,382.9
Period (1/1/75 - 6/30/75)	(24.9%)	(46.8%)	(28.3%)	(100.0%)
(Preliminary First Half)				
TOTAL	5,321.8	4,596.7	14,138.2	240,567
	(22.1%)	(19.1%)	(58.8%)	(100.0%)

b. Other Bulk

First Accounting	758.5	53.6	1,090.5	1,902.6
Period (7/1/72 - 12/31/73)	(39.9%)	(2.8%)	(57.7%)	(100.0%)
Second Accounting	132.6	50.4	1,118.5	1,301.5
Period (1/1/74 - 12/31/74)	(10.2%)	(3.9%)	(85.9%)	(100.0%)
Third Accounting	NOT AVAILABLE			
Period (1/1/75 - 6/30/75)				
TOTAL	891.1	104.0	2,209.0	3,204.1
	(27.8%)	(3.3%)	(68.9%)	(100.0%)

During the first half of 1975, as shown in Table IV above, an imbalance developed in the carriage of grain cargoes in favor of Soviet vessels. The imbalance essentially resulted from a dispute over an acceptable freight rate for carriage of grain on U.S.-flag vessels, and improper cargo offering procedures by the Soviets. Under the Agreement, however, the Soviets have a continuing obligation to offer: (1) sufficient grain cargoes to offset the imbalance by December 30, 1975, and (2) the U.S. share (the greater of one-third or parity) for the grain cargoes shipped during the second half of 1975.

Current activity relating to the Agreement involves two major issues: (1) the establishment of a mutually acceptable freight rate for the carriage of grain to the Soviet Union by U.S.-flag vessels, and (2) the negotiation of a new Agreement to be effective on January 1, 1976, upon the expiration of the present Agreement at the end of 1975.

Since May 1975 the Maritime Administration has been negotiating with the Soviet side to establish a rate that would assure U.S.-flag vessel participation. On July 31 the U.S. side called for a special meeting on this subject, which was convened in Washington on August 18. No rate was established at that session, and a further meeting has just been concluded in Moscow. As a result of that meeting, a minimum rate of \$16 a ton, subject to upward adjustment based on an index, was agreed through December 31, 1976.

Negotiations commenced in November 1974 for the renewal of the Agreement. There have been several meetings between the Designated Representatives since then and a further meeting is scheduled for October in Washington.

U.S.-U.S.S.R. TECHNOLOGICAL EXCHANGES IN THE FIELD OF MARINE TRANSPORTATION

An Agreement on exchanges between the U.S. and U.S.S.R. in the field of transportation was signed on June 19, 1973. The areas to be covered were: Marine Transportation, Civil Aviation, Rail Transport, Automobile Transport, and Transport Construction. The Marine Transport Working Group was to address five areas:

1. Organization and development of joint requirements for safety of life at sea;
2. Exchange of technical information on ice transiting vessels;
3. Organization and technology of ocean commerce and cargo handling in ocean ports;
4. Commercial ship equipment, crew training, and human factors;
5. Joint studies of ocean wave spectra and the loadings they cause on ship structures.

Since the Agreement was signed, there have been several delegation visits in each direction, and information has been exchanged in a steady flow of correspondence. Plenary sessions are held each year to discuss the overall direction to each of the working groups; the first was in Moscow in January 1974, the second in Washington in November 1974, and the third is scheduled for Moscow in September 1975.

The activities of the panels are as follows:

Safety of Life at Sea—This panel is chaired by a U.S. Coast Guard representative to the Intergovernmental Maritime Consultative Organization. Most of the exchanges have directly concerned IMCO matters and this panel has become a separate channel between the two countries on these matters. There have been no exchange of delegations because the participants meet regularly at IMCO meetings in Europe.

Ice Transiting—The first U.S. delegation visited the Soviet Union for 2 weeks in February 1975. The delegation members toured several facilities, took a short trip on an icebreaker, and established a plan for future exchanges. Due to the necessities of geography, the Russians have developed a substantial capability for moving their ships through ice. Because the U.S. Coast Guard has the primary responsibility for ice transiting, one of their captains acts as the U.S. chairman.

Cargo Handling and Ports—During a visit to the United States in July of 1974, six Soviet technicians were shown through the most modern terminals on the East coast. In return, six representatives of our Government and industry visited their facilities in Moscow, Odessa, and Leningrad in September.

The next round of exchanges is scheduled for October of this year. There are plans to conduct symposia in each country and also to exchange a few technicians for extended training programs. A number of books on port and cargo regulations have been sent in both directions in the past year. Also, it is intended to promote compatibility between container and trailer terminals and connecting inland service by discussing various computer control systems.

Ship Equipment, Crew Training and Human Factors—The United States is exchanging data with the Soviet Union on ship automation and communications. We have discussed various technologies with the Russians and two exchange visits coincided with the visits of the Cargo Handling and Ports panel. We have been interested in getting their cooperation on a compatible satellite communication system for commercial ships and we have discussed this under the aegis of the Agreement with limited success. The State Department is also concerned with this question and has efforts of its own underway. On other matters there have been exchanges of a small amount of information on automation and vessel servicing, and further transfers on training methods and crew retention are planned.

Wave Spectra—The frequency with which different sized waves occur on ocean trade routes and the forces that these waves impose on a ship's structure, are areas of ocean technology suffering from insufficient data. Measuring wave heights from a moving ship is a difficult problem but sophisticated equipment has recently been developed to do this. This panel has discussed the possibility of outfitting American and Russian ships with these devices while simultaneously measuring the stress and strains that are imposed on the test ship's structure. These would be vessels plying their normal trade routes. The Soviet Union has been exploring the possibility of buying the necessary equipment from a supplier in the United States.

The Department of Transportation is responsible for monitoring the basic Agreement and the Maritime Administration chairs the Marine Transport Working Group.

THE SOVIET FISHING INDUSTRY: A REVIEW

(By Milan A. Kravanja¹)

GENERAL BACKGROUND

For centuries Russia's marine fisheries were coastal and remained so during the first decades of Soviet power. In the early 1950's, however, the Soviets began to expand into both Atlantic and Pacific high-seas fisheries. Twenty-five years later, the U.S.S.R. has become one of the world's leading fishing nations. The U.S.S.R. today has the world's largest distant-water fishing fleet operating in all of the world's oceans. The 1975 catch of 10.3 million metric tons (including marine mammals and other aquatic products) exceeds by more than 6 times the 1.7 million tons harvested in 1950, and places the Soviet Union second among the fishing nations of the world (after Japan).

During the past 50 years, the Soviet Union has converted its labor-intensive fishing industry to modern, capital-intensive fisheries. The number of Soviet fishermen in 1975 is estimated at approximately 250,000, or about the same as in 1913. However, the 1913 fisheries catch was slightly over 1 million metric tons, whereas the 1974 catch surpassed 9.6 million tons. Total employment in the fishing industry, including processing workers, and service and administrative personnel, is about 750,000. The average yearly capital investment in fisheries has grown from US\$2.9 million in 1940 to over US\$1 billion in 1975. This figure includes total investments for new vessels, processing plants, refrigeration facilities, ports, and repair yards.

No official plan for maritime expansion has ever been made public, nor can it be expected that one will be released or even acknowledged in the near future. It is clear, however, from the rapid and controlled expansion of the Soviet naval, merchant and fishing fleets, that guidance and planning are coming from the highest levels of the Soviet Government. While the specific planning details and final objectives of this expansion are not fully known, much can be inferred from the results.

The Soviet fishing industry is not only an important, but is rapidly becoming an essential part of the contemporary Soviet food economy. In addition to providing a significant contribution to the nation's food supplies, it is also a large user of human and material resources. The Soviet Government determines the proportion of the Soviet budget to be invested in the fishing industry, sets the production targets for the industry in terms of annual and 5-year plans, fixes the salaries of all persons employed in the fisheries, and determines the price of fishery products sold on domestic and foreign markets. Thus, the control of the fishing industry by the Soviet State is complete.

¹Chief, International Fisheries Analysis Division Office of International Fisheries National Marine Fisheries Service, NOAA U.S. Department of Commerce, March 1976.

FISHING INVESTMENTS

During the past 50 years, the Soviet Union has invested over 12 billion rubles in her fishing industry. Investment allocations, which were meager during the first 20 years (about 300 million rubles), increased spectacularly during the 1960s. At present, over 800 million rubles are invested in the fishing industry each year: this is almost triple the sum authorized during the entire first 20 years of planned investment policy.

A dramatic switch occurred in the mid-1950s (after Stalin's death) in the type of programs financed by fishery investments. Until then, about half of the total annual fishery investments was spent on building up the fishing fleet; the other half was used to build "shore plants" (ports, cold storage, processing plants, etc). During the subsequent decade (from 1956 to 1965), investments allocated to the build-up of the fishing fleet amounted to 78 percent of all fishery investments. It was during those 10 years that the U.S.S.R. more than doubled the gross tonnage of her fishery fleet, entered into all major distant-water fisheries (including those off the United States and Canada) and became a major fishery power with interests in all of the world's oceans.

Since 1966, this one-sided investment policy has changed somewhat, although 69 percent of all investments are still spent for procurement of fishing and fishery support vessels. It is expected that during the 1970s the Soviets will switch their priorities once again and increase investment capital for programs aimed at perfecting the "shore facilities." Several new fishing ports are now being constructed and the modernization of cold-storage plants and automation of fish-processing plants are both becoming major investment objectives.

In 1975, the decision was made by the Soviet Ministry of Fisheries to construct 100 retail fish stores in major urban centers throughout the Soviet Union as well as 15 giant fish-processing complexes. These projects will absorb a large proportion of the total fishery investments during the 1976-80 planning period. However, exact data on the amounts to be spent are not yet available.

THE FISHERIES CATCH

During the early stages of its development, the Soviet fishing industry concentrated on inland freshwater fisheries and on the marine fisheries of the Caspian and Black Seas. After the Second World War, the high-seas fisheries expanded rapidly and by 1975 accounted for 90 percent of the total catch. The North Atlantic and the North Pacific are the most important grounds for Soviet fishermen. Since the late 1950's, the Soviet Union has conducted extensive factoryship fishing operations in the Bering Sea and the Gulf of Alaska. In the mid 1960's, the fleet extended its operations southward to waters off Oregon and Washington, and by 1972, Soviet vessels were fishing off the coast of California.

In 1961, a Soviet fishing fleet entered the fisheries on Georges Bank off the New England coast. The Soviet Union has since operated large, highly-modernized fishing fleets off New England and along the mid-Atlantic coast as far south as Cape Hatteras (North Carolina).

Because many fish stocks in the North Atlantic fishing grounds are now depleted, the Soviet fishing industry has begun a move to previously unexploited grounds in the Southern Hemisphere. The latest Soviet fishing thrust has been in the Indian Ocean, the areas around Australia and New Zealand, in the Southern Pacific, and off Antarctica. Soviet expansion in South American waters has been hindered by the unilateral extension of fishing zones to 200 miles by most South American countries.

The average annual increase in the Soviet fisheries catch amounted to over 18 percent per year during the last 25 years, increasing almost sixfold from 1.8 million tons in 1950 to over 10 million tons in 1975. The most significant factor in this increase is the spectacular build-up of the Soviet fishing fleet: as more vessels were added, the catches increased. The part played by the increased productivity and greater experience of the individual Soviet fishermen in this development is difficult to judge, mainly because the Soviet Fisheries Ministry does not publish an annual yearbook of fishery statistics which would make such data more than an educated guess. The data exist, but they are locked in the desk drawers of Minister Ishkov and the Soviet fisheries "establishment."

The U.S.S.R. is today the second largest fishing country competing in a neck-and-neck race with the largest fishing industry of the world—Japan. Because of the unusual and continued investments in its fisheries, the Soviet Union will probably surpass Japan's catches—but not the high productivity of the Japanese fishermen—in the next few years.

The worldwide competition for fishery resources between Japan and the Soviet Union will grow even hotter after the 200-mile fisheries jurisdiction becomes universally accepted. In a recent article in *Pravda* (Feb. 12, 1976), the U.S.S.R. announced that it does support the so-called "200-Mile Economic Zone" under which the coastal states have sovereign rights to all living and mineral resources within their respective zones. By embracing this concept, the Soviet Union is not only showing support for a widely-accepted international principle, but also allowing for the possibility of its own extension to a 200-mile fishery limit.

To alleviate somewhat the impact of the extended jurisdiction, Japanese private companies, supported by the Government, have during the last 10 years, concluded a number of joint fishing ventures, or have bought out foreign fishing companies to insure their vessels' access to the fishing grounds in the "post-200-mile" world. Over 80 joint fishing ventures have been concluded throughout the world by Japanese businessmen.

There are some indications that the Soviet Ministry of Fisheries is currently embarking on a similar policy, imitating—as it often has in the past—a successful Japanese precedent. The Soviet thrust is concentrated in Africa, but important fishery deals have also been concluded with (of all places) Franco's Spain, France, and other European and Asian countries. In South America, the Soviets have been less successful except in Cuba where politics are more important than fisheries. The Chilean joint venture fell apart after Allende's downfall and in Peru, the Government complains that the Soviets promised much (U.S. \$60 million) for reasons of good public relations,

but delivered only a trickle (\$1.8 million). The chief protagonist of the Peruvian-Soviet fisheries cooperation, General Vanini-Tantalean, is under arrest accused of corruption.

The Soviet fisheries catch in 1975 amounted to an estimated 10.3 million metric tons, or close to 15 percent of the world's catch. Only a decade earlier, in 1965, this percentage was one third smaller (9.5 percent). Since most of the Soviet fisheries expansion after 1965 occurred in the waters adjacent to the developing nations of Asia and Africa, the Soviet fishing fleets are thus in direct competition with rapidly developing fishing industries in those countries. The realization of this fact by developing nations has given an added impetus to the movement to extend fishery jurisdictions as far as possible: many African countries have unilaterally extended their fishing limits to 30, 50, even 200 miles, and others are preparing to claim the 200-Mile Economic Zone, which would give preference to nearby coastal states in the harvesting of fishery stocks within the zone. This action could be taken either unilaterally, or in unison with the current United Nations' Law of the Sea (LOS) Conference.

Soviet fishing off Latin America is practically non-existent. Most countries in South America already claim a 200-mile fishing limit, or even a 200-mile Territorial Sea (and thus full sovereignty), and the U.S.S.R. has by and large respected these limitations. In 1966-67, an attempt was made by the Soviet Fisheries Ministry to enter the virgin Patagonian hake fisheries off Argentina. However, this "invasion" was so clumsy and so devoid of any feeling for Argentine sentiment that it provoked an almost immediate extension of Argentine fishery limits to 200 miles. The Soviet catches from the Patagonian Shelf, which increased from zero to almost 700,000 tons in 3 years, were reduced to zero again by 1969.

The Argentine episode brings to mind another extension of fishery limits which was directly caused by the predatory behavior of the Soviet fishing fleets. In April 1966, the Soviet Far Eastern Fisheries Administration began an intensive fishery for hake off the U.S. Pacific Northwest coast (the states of Washington and Oregon). Without any prior warning or announcement, the number of Soviet vessels increased daily until, a few weeks later, almost 120 large and medium trawlers and support vessels effectively disrupted the operations of U.S. coastal fishermen, crowding them out of their traditional fishing grounds, causing damage to their gear, and overfishing the species on which their livelihood depended (Rockfishes). The U.S. Congress reacted with a fulminating speed and extended—to the great surprise, shock and chagrin of the Soviet Fisheries Ministry—the U.S. fisheries jurisdiction 9 miles beyond and contiguous to the traditional 3-mile fishing limits in October 1966.

This expansionary drive of the Soviet fishermen could not be moderated by any advice the U.S. offered in friendly persuasion. The same policy was followed on the East Coast where, in 1965 and 1966, the Soviet fleets overfished the Atlantic haddock to a point where the very existence of the species was threatened, causing a ban on fishing and the resulting serious economic dislocation of New England's haddock fishing industry.

In the next 10 years, the U.S.S.R. and its East European allies—East Germany, Poland, Bulgaria and Romania—overfished several species

(Pacific ocean perch, Atlantic mackerel, and others) and seriously threatened, Mid-Atlantic herring, Mid-Atlantic river herring, or alewife, Pacific halibut, etc.).

This careless behavior of the Soviet fishing fleets led at first to subdued demands for an extension of the U.S. fisheries jurisdiction to 200 miles and, in the early 1970's, to an avalanche of repressed sentiment which, sweeping aside Defense and State Departments objections, resulted on January 29, 1976 in the Congressional passage of the 200-mile bill, named officially the Fishery Conservation and Management Act of 1976.

The worldwide extension of fishing limits will severely dislocate the operations of the Soviet fishery fleets. A large percentage of the Soviet "distant-water" catch comes from the coastal waters of West European, North American, Asian and African countries. This portion of the catch, which can be estimated at between 80 and 90 percent of the total, will be unavailable to foreign fleets except by permission of the coastal countries. If "the past is prologue", such permission not only will be far below the present levels of the Soviet catches off foreign coasts, but will also be more costly to the Soviets.

The Soviet fisheries hierarchy is well aware of the coming storm. In mid-1975, Minister Ishkov formed an LOS committee, chaired by his Deputy Fisheries Minister for International Affairs, Mr. Georgii Vladimirovich Zhigalov, a former fisheries official from Vladivostok, who has had vast experience in negotiating with foreign countries and settling conflicts between foreign and Soviet fishermen. A level-headed man with good common sense, Mr. Zhigalov will be hard put to find answers to the uncertain future which the Soviet fishermen face as the Law of the Sea Conference gets into the decisive and possibly final stages of its deliberations. (The Third Substantive Session of the Conference began in New York on March 15, 1976.)

FLEET

The U.S.S.R. has not supplied data (as far as is known) on the gross tonnage and the number of its fishing vessels to the Food and Agriculture Organization of the United Nations (FAO) since 1956, when the buildup of its distant-water fishing fleets began seriously. This fact may indicate that the Soviet military (naval) establishment decided that such statistics are "sensitive" information and should be "classified".

Despite this Soviet secrecy, Western experts have a good idea of the size and comparative position of the Soviet fishing fleet. It numbers over 80,000 fishing vessels, most of which are small coastal craft, or even boats used in inshore and internal waters.

A feeble effort to modernize the fishing fleet began during the 1930's, but the main thrust came after the Second World War—in the late 1950's and after. The Soviet fishing fleet currently totals 18,000 powered vessels, including medium side trawlers, stern factory and freezer trawlers, processing vessels, floating canneries, rescue tugs, research vessels, and various other fishery support vessels. The Soviet fleet accounts for about 25 percent of the world's fishing fleet in terms of the number of vessels, but about 50 percent of the world's

fishing fleet when measured in gross registered tons. This is an indication that the Soviets support their worldwide, distant-water fisheries with vessels larger than those of any other nation, including Japan. These larger vessels, on the other hand, not only increase the costs of fishing operations enormously, they also lower the average productivity per gross ton.

The total number of Soviet high-seas fishing vessels is about 4,450. Many of these vessels were purchased in Poland, the German Democratic Republic, and in West European countries. A total of about 780 large stern factory trawlers currently fish under the Soviet flag, representing an estimated investment of about 2 billion rubles.

The Soviet fishing fleet is the largest in the world, both by number of vessels and gross tonnage. Comprising over 4,500 high-seas, distant-water vessels totaling in excess of 6 million GRT, it represents more than 50 percent of the world's high-seas fishing fleet tonnage estimated at 11-12 million GRT. The U.S.S.R. fleet outranks the second largest fishing fleet—that of Japan—both by number of vessels and by tonnage, but not by the amount of fish caught.

The average annual catch of Soviet fishermen per gross registered ton is comparatively low because the Soviets use fishery support (non-fishing) vessels much more extensively than any other country in the world. In 1973, the Soviet fishery fleet managed to catch on the average only about 1.6 metric tons of fish per gross registered vessel ton. This was about one-fifth what Japanese fishermen caught. Even U.S. fishermen, operating on small but efficient vessels, landed on the average almost 4 times as much per gross ton as did Soviet fishermen.

After the 1917 Revolution, the Communist regime began to modernize the obsolete fishing fleet left over from Tsarist Russia. In the first 5 Year Plan (1928-32), priority was given to the development of a trawler fleet. Subsequent 5-year plans anticipated further modernization, but were severely hampered by internal political strife and ultimately by World War II, when the existing fleet was practically annihilated.

Although the first post-World War II 5 Year Plan (1946-50) provided for the reconstruction of the fishing fleet, serious efforts did not begin until 1955. Most Soviet fishing vessels were then built in East Germany, which was occupied by the Soviet Army, and sent to the U.S.S.R. as war reparations. Although the German Democratic Republic remains to this day one of the main suppliers of fishing vessels,¹ the Soviet Union also buys vessels from a number of other countries. In addition, a considerable number of fishing vessels are being constructed in domestic shipyards.

The new fleet has the ability to operate far from Soviet shores. This distance gradually increased from an average of 200 miles in 1950 to over 4,000 miles in the late 1960's.

An important factor in the development of this high-seas fleet has been the introduction of the so-called stern factory trawler, a British invention. These vessels are capable of handling a much larger quantity of fish and operating at sea for up to 1 year. They are equipped with processing facilities, including fishmeal plants which reduce fish offal into fishmeal used in feeding cattle, chickens, and other domestic animals as well as mink.

¹The East German shipyards delivered 1,077 high-seas fishing vessels by June 1976.

The Soviet Union has not decreased the rate of expansion of its fishing fleet up to this time. In fact, it has been announced that 900 new fishing vessels and 70 refrigerated transports were added during the just completed ninth 5 Year Plan (1971-75). According to Western estimates, the U.S.S.R. presently deploys about 4,450 high-seas fishing vessels.

The attention of the Soviet Ministry of Fisheries is now being directed toward further modernization of the fleet and increased productivity of its fishermen.

After the death of Stalin in March 1953, and the resulting interest in Western nonmilitary technological innovations, the Soviets obtained from the British the blueprint for one of the most brilliant inventions in modern fishing—the stern factory trawler. Lacking the necessary technology, the Soviet fishing vessel designers were unable to reproduce the vessel and the U.S.S.R. was forced to order her first 24 stern factory trawlers from the Kiel Shipyards in West Germany. Once these were delivered, the U.S.S.R. began its own production (in the Nikolaev Shipyards on the Black Sea), and induced Poland and East Germany to follow suit. Soon all three countries began to mass-produce stern factory trawlers. Since most Polish- and East German-built trawlers went to the Soviet Union, the Soviets were able to expand their high seas fisheries rapidly. In the Atlantic, they were fishing off Canada (Newfoundland Banks) by 1956, off New England (Georges Bank) by 1961, and by 1962 their vessels were sighted in the Caribbean.

Today, almost 780, or about 15 percent of all Soviet high seas fishing vessels, are large stern factory trawlers constructed domestically or bought in the German Federal Republic, France, Poland, and East Germany.

A similar number of support vessels—processing vessels, motherships and refrigerated fish carriers—was purchased in many West European countries (the Netherlands, France, Denmark, Sweden, FRG, etc.), in Japan, and in Eastern Europe (especially in Poland, but also in East Germany and even in Bulgaria).

The rest of the Soviet fishing fleet is composed of smaller (250-800 GRT) side trawlers and an armada of supply tankers, floating repair shops, water carriers, fishery enforcement vessels, and tugs.

PORTS OF CALL

For transshipping the catch, and refueling and resupplying the fishing fleet, the Soviet Union uses a number of ports of call near the grounds where its fishing fleet operates. The most important of these ports are Singapore for the Indian and Pacific Oceans, Havana for the western Atlantic Ocean, the Canary Islands for the eastern Atlantic Ocean, and St. John's and Halifax in Canada for fishing grounds adjacent to the Atlantic coasts of Canada and the United States.

Those arrangements are sometimes accompanied by joint ventures such as a projected seafood processing plant in Singapore and export facilities on Spain's Canary Islands.

In September 1962, a special agreement was signed with Cuba for the construction of a modern fishing port in Havana Harbor. Although the Cuban missile crisis delayed the construction, the

Havana fishing port was officially opened on July 26, 1966. The Soviet Ministry of Fisheries, in return for constructing the facilities, has the right to use the port of Havana for servicing its fishing fleet. This agreement expires July 26, 1976, but is expected to be extended.

Besides their regular points of transshipment and refueling, Soviet ships regularly call at other ports of the world as well. Until the late 1960's, the United States denied Soviet fishing vessels entry into its ports except in emergencies. After extensive negotiations, an agreement was reached in 1967 allowing four Soviet vessels to call once a month at Boston, New York, Philadelphia, and Baltimore.

The Soviets imitated Japan in the manner of their distant-water fishery operations: an "expeditionary flotilla" is set up with as many as 100-150 vessels, its own Fleet Manager, and its own logistic supply. While most of the vessels fish, the motherships stand by to accept primary or semiprocessed catch and supply the fishing fleet with daily necessities and information on where the best fishing is available. The latter data are collected continuously by exploratory research and scientific research vessels accompanying the fleets.

FLEET INVESTMENTS

During the last 30 years, since the end of World War II, the Soviet Union has invested an estimated 8 billion rubles in adding new fishing and fishery support vessels to its antiquated and inefficient prewar fleet.

The capital investments in the fishery fleet have almost doubled during each of the 5-year planning periods. However, during the last 5 Year Plan (1971-75), the total amount was so large (an estimated 3 billion rubles) that doubling it would have resulted in the construction of more fishing vessels than the Soviet Ministry of Fisheries could find crews to man, or facilities to support.

During the next 5 Year Plan (1976-80), capital investments for the construction, or purchase abroad, of new fishing vessels will be considerably smaller (possibly as much as the one-third smaller) than during the 1971-75 period.

Many new vessels will be replacements for older vessels built 20 to 25 years ago and now ready for retirement. The buildup of the high seas fishing fleet will be deemphasized in view of the new realities of the "post 200-mile fishing limits world". More smaller vessels, suitable for coastal operations, will be built. Processing vessels with more automation, more modern plants and greater efficiency will be required to provide better quality fishery products; most of them will probably be bought from Polish or West European shipyards. The folly of building the giant 33,000 gross-ton mothership with 14 catcher vessels on board (the *Vostok*) will most likely not be repeated. The *Vostok* (built in the Leningrad Shipyards) was the idea of Soviet Fisheries Minister Ishkov and proved an expensive failure, both in its efficiency and in the productivity of its piggyback catcher boats.

FISHERMEN'S PRODUCTIVITY

No reliable statistical data or standards for measuring the productivity of Soviet fishermen, or comparing it to the productivity of fishermen of other countries exist.

The only comparison for which enough information was available was made by computing the ratio of total yearly catches to the gross tonnage of the fleet. These data show that the Soviet fishing fleet is the least productive when compared to the fishing fleets of Japan, Spain, Norway, or the United States, the five largest fish-catching countries in the world.

One reason for this low productivity is the fact that more than half of the gross tonnage of the Soviet fishery fleet consists of non-productive support vessels needed for long trips and distant fishing grounds. By comparison, only 14 percent of the Japanese fleet consists of support vessels. Unlike the Soviets, the Japanese are not reluctant to pay with hard currency for services to their fishing fleet in foreign ports, thus cutting down the need for their own support vessels. Japan also utilizes thousands of small vessels for coastal fishing. Furthermore, its economic system is based on incentives and free enterprise which do not tolerate inefficiency to the same degree possible in the Soviet state-owned socialist system.

Closest to the U.S.S.R. in terms of productivity (as related to gross register tonnage) is Spain, but even its fishermen are twice as productive as the Soviets.

EDUCATION

The rapid expansion of the Soviet fisheries fleet and the introduction of modern processing technology demands a highly skilled labor force and high grade technical specialists. To tap the tight Soviet labor markets, the Ministry of Fisheries transformed what used to be unskilled trade into a government recognized profession with a well-developed system of secondary schools and universities.

There is no lack of candidates for Soviet fishery schools, in contrast to many Western countries where it is difficult for fishing companies to lure young people into fishery schools (provided they exist). Several factors explain the enthusiasm of young Soviets toward the fisherman's profession. For example, the salaries paid to Soviet fishermen are twice and sometimes three times as high as those paid to ordinary Soviet workers. Education in the fisheries schools, as in all Soviet schools, is free. Life aboard modern Soviet fishing vessels is relatively comfortable, vacations are long and well-paid, and fishermen, unlike most Soviet citizens, are able to travel and visit foreign ports.

There are four different types of fishery schools in the U.S.S.R. The first is available after graduation from the eighth grade and produces skilled workers without a secondary school diploma who remain low paid employees. The next level includes the fishing industry's specialized secondary fishery schools, which train high seas captains, navigators, and other officers. The 10 secondary coastal fishery schools train students for the same positions, but only for coastal and inland fishing fleets. Six higher technical and engineering institutes, the equivalent of U.S. colleges, are the third type of Soviet fisheries educational institution. Admission standards are rigorous and graduates become top-level economists, gear designers, planners, and managers of the fishing industry. Schools for improving the qualifications of fisheries personnel update the skills of medium and high level personnel.

In 1975, about 61,000 students were studying in 31 Soviet secondary and higher fishery schools and institutes. About one-half take correspondence courses while working fulltime in the fishing industry. Every year, approximately 10,000 students graduate from the system. There is no figure available on the total number of professors in Soviet secondary and higher fisheries schools; however, based on available data, the student-faculty ratio is estimated at 20-25:1. This would mean that about 2,500-3,000 fulltime faculty members teach in Soviet fishery schools.

It is interesting to note that about 50 percent of the professors in the schools of the Western Fisheries Administration (data for other administrations is not available) belong to the Communist Party of the U.S.S.R. This is an unusually high percentage, but is not surprising considering the large amounts of money the Soviet government has spent developing the high seas fishing fleet, which operates off foreign shores and often visits foreign ports. The Fisheries Ministry doubtless wants to instill strong Party leanings in its future high level officers in order to protect its investment.

In 1973, the Soviet Fisheries Ministry budgeted a reported 48 million rubles for its fishery schools, or a little less than 5 percent of its entire budgetary allocations. The average cost per fisheries student would thus amount to about 800 rubles (U.S. \$1,050) per year.

CONSUMPTION

Fishery products are an important source of animal protein in the Soviet Union, a country where a comparatively small percentage of the agricultural resources can be expended on beef production. The arable land, which is severely limited by climatic and geographical considerations, is cultivated mainly for food crops such as grain. Pasturage for beef cattle is therefore scarce, and fodder production low. Fish and fish products are a viable solution to what could become a serious protein deficiency in the Soviet diet.

This situation is illustrated by the fact that Soviet consumers eat more fish than consumers in most European countries. The Soviet annual consumption of fish per capita was 16.9 kg in 1975 (preliminary data). The Soviet Government would like to increase it to 18.2 kg per capita, a figure recommended by the Academy of Sciences of the U.S.S.R. as the optimal annual requirement of fishery products for the average Soviet citizen. Fisheries Ministry personnel have suggested that Soviet fish consumption could increase to as much as 20-22 kg per year, but this was before the extensions of fishery jurisdictions throughout the world cast a pall over Soviet plans for expanding fishery catches.

The Soviet population has been eating comparatively large amounts of fishery products during the last 25 years. In 1950, the Soviets consumed only 7.0 kg of fish per capita, but Soviet consumption of fishery products has increased steadily since that year. The growth in fisheries consumption was especially evident throughout the 1960's, when the catch was increasing dramatically with the development of the Soviet high seas fishing fleet.

In recent years, however, the increase in the consumption of fishery products in the U.S.S.R. slowed down somewhat. Although the Soviet

Minister of Fisheries, A. A. Ishkov, announced in 1975 that consumption would reach 18.2 kg by 1976, the final 1975 figure of 16.9 kg falls far short. The problem seems to be one of getting the fish to the table of Soviet consumers, since Soviet fishermen have consistently been fulfilling and overfulfilling their catch plans. In any case, the Soviet consumption exceeds considerably the relatively small amounts of fishery products eaten in the United States (5.5 kg per capita in 1975).

FISHERY EXHIBITIONS

The first international fisheries exhibition sponsored by the Soviet Ministry of Fisheries was held in Leningrad in 1968. Called "Inrybprom-68," the exhibition was an effort on the part of the Ministry to attract foreign companies to display the latest developments in fisheries technology. The Ministry also took advantage of the exhibition to show off some of its own achievements, including a display of innovative fishery support vessels.

Based on the success of its predecessor, "Inrybprom-75" opened in Leningrad on August 6, 1975. The scope of this second Soviet international fisheries exhibition was much larger than that of the first. Over 400 organizations and 40 ministries and departments represented the U.S.S.R., while 284 foreign firms displayed fishery products, gear, and equipment manufactured around the world.

The exhibition lasted only 2 weeks, but Soviet reports indicate that 150 million rubles (U.S. \$202.7 million) in contracts were signed. This figure is twice as large as in 1968, when final contracts for the 2-week exhibit totaled only 75 million rubles (U.S. \$83.3 million).

There have been some indications that the Soviet Ministry of Fisheries went on a buying spree during "Inrybprom-75." For example, the first stages of a vessel construction project were discussed at the exhibition with representatives of the Polish shipbuilding industry. Four months later, a contract was signed to build a new class of fish-factory baseships in Polish shipyards. The contract, worth a quarter of a billion dollars, is said to be the largest in the history of Polish shipbuilding. The Soviets have also agreed to buy from Poland five supertrawlers of a completely new class, series B-400, the prototype of which was first displayed at "Inrybprom-75".

The single U.S. firm participating at the exhibition, the Xodar Corporation of Rhode Island, also found the Soviets in an agreeable mood; Ministry of Fisheries personnel reacted enthusiastically to its products, which included aquaculture and filtration systems and pollution-testing equipment.

FOREIGN TRADE

The expansion of the Soviet fishing fleet and the resulting increases in the harvest of marine products have brought about a significant change in that country's foreign trade in fishery products. In 1959, the value of the Soviet Union's fishery exports for the first time surpassed that of fishery imports, and exports have consistently exceeded imports ever since. During the early 1960's, when Nikita Krushchev was still in power, the quantity and value of Soviet fishery exports began to increase sharply. Except for a few reverses suffered

in the late 1960's, this trend has continued, becoming especially pronounced since 1972.

Soviet fishery imports, on the other hand, peaked in 1954 and have since been on a downward trend, excluding several fluctuations which were caused in part by political factors. In 1974, for example, Soviet imports of fishery products from abroad consisted of 2,000 tons of fresh and frozen fish and caviar from Iran and 11,500 tons of fresh and frozen fish, fish fillets, and fish meal from Iceland. The most valuable single purchase from Iran was caviar, which is not sold in the U.S.S.R., but reexported to West European countries and the United States to earn hard foreign currencies. The Soviet Union continues to buy fish in Iceland as part of a barter agreement under which the Soviets supply Iceland with oil and gasoline products.

Soviet fishery exports have become progressively more valuable, not only to the Soviet Ministry of Fisheries, but to the Soviet economy as well. Under the Soviet system, a Ministry generating foreign currencies has preferential treatment, both in obtaining domestic rubles for investment and hard-to-get foreign funds.

In 1974, Soviet fishery exports amounting to over 125 million rubles exceeded imports, totaling 17 million rubles, by more than 108 million rubles. This surplus balance of trade is almost as large as the total Soviet fishery imports for the past 8 years, and is a clear indication that the Soviet fishing industry is becoming an important earner of foreign exchange for the Soviet Government.

Large amounts of Soviet fishery products are sold to African countries such as the Ivory Coast, Togo, Sierra Leone, and Egypt. The Soviet Union, since the early 1960's, has pursued a policy of selling fish in Africa as a form of "foreign aid" to these developing countries. Soviet trawlers, operating off the African coasts, come into nearby ports and sell their catch directly to local merchants at low prices. The trawlers, which are large and visible, cannot help but make an impression on the population of the port.

The fishery exports sold to African countries are mostly fresh and frozen semiprocessed products. Fishery commodities exported to Western and Eastern Europe, however, are generally more valuable products such as canned crab, caviar, and canned fish of various kinds, including salmon and tuna.

FISHERY INVESTMENTS

During the current 5 Year Plan (1971-75), the Soviet Government is to spend about 4 billion rubles (U.S. \$5.2 billion²) for the development and expansion of its fishing industry (see table 1). About 60-70 percent of this sum will be invested in new fishery vessels. The 1971-75 annual fishery "appropriations" are about 20 percent greater than they were during the previous 5-year period.³ Nevertheless, their rate of growth has slowed down from that of the late 1950's and 1960's when fishery investments doubled every 5 years.

The Soviet budget is published in two parts: One includes all expenditures (including social, cultural and economic expenditures), the

² Because of changing exchange rates, figures will be given in rubles. The current exchange rate is U.S. \$1.32 equals 1 ruble.

³ The planned investment for the 1966-70 period was 3.5 billion rubles, but the actual investment was reportedly 3.3 billion rubles.

other lists separately expenditures used for "national economy investments". Average current yearly investments for fisheries amounting to about 800 million rubles,⁴ represent 0.5 percent of the total Soviet budget and 1.1 percent of the "national economy" investments.

During 1928-75, the Soviet Union invested almost 12 billion rubles in its fishing industry. Investment allocations, which were meager during the first 20 years, increased spectacularly after the end of World War II. The rapid increase from about 20 million rubles to over 70 million rubles a year was needed to rebuild the fishing fleet in the Barents, Baltic, Black, and Caspian Seas where German air supremacy in the first years of the conflict inflicted severe losses of fishing craft. Most Soviet vessels engaged in those fisheries were sunk or damaged. Rebuilding destroyed port facilities and processing plants also required large investment funds.

The capital investments in the Soviet fishing industry for the past 50 years are shown in table 1. They are divided into the 5-year planning periods.⁵

⁴This sum does not include expenditures for the construction of housing for fishermen, fish-processing workers, and fishery administrators.

⁵During the war years 1941-45 there was no 5-Year Plan; nevertheless, a total of 96.8 million rubles was invested in the fishing industry.

Table 1. Capital investments in the Soviet fishing industry, by planning periods.
(in million rubles)

Period	Total investment	Per Year	For fishing fleet		For shore-based plants	
			Total	Per Year	Total	Per Year
1st FYP: 1929-1932	17.6	4.4	1.6	0.4	16.0	4.0
2nd FYP: 1933-1937	55.0	11.0	5.0	1.0	50.0	10.0
3rd FYP: 1938-1940	46.2	15.4	3.6	1.2	42.6	14.2
1941-1945	96.8	19.4	7.7e	1.5e	89.1e	17.8e
4th FYP: 1946-1950	366.0	73.2	218.0	43.6	148.0	29.6
5th FYP: 1951-1955	721.0	144.2	386.0	77.2	335.0	67.0
6th FYP: 1956-1958	886.5	295.5	560.1	186.7	326.4	108.8
7th FYP: 1959-1965	2,032.0	290.3	1,533.5	219.1	498.5	71.2
8th FYP: 1966-1970	3,500.0	700.0	2,450.0	490.0	1,050.0	210.0
9th FYP: 1971-1975	4,000.0	800.0	2,600.0e	520.0e	1,400.0e	280.0e
TOTAL	11,721.1	254.81/	7,765.5	168.81/	3,955.6	86.01/

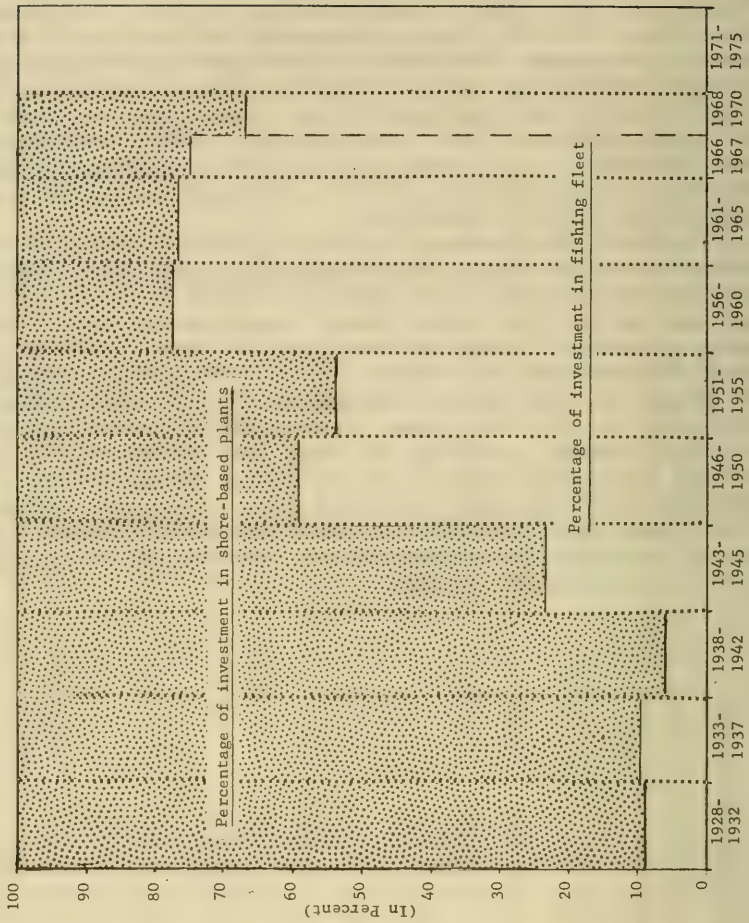
Source: Sysoev N.P. Sostav i struktura osnovnykh proizvodstvennykh fondov rybnoi promyshlennosti SSSR. Trudy Atlantiro, No. 26. p. 19. Kaliningrad, 1970.

1/ Average annual investment.

The policy of reconstruction (1945-53) was followed by a policy of expansion after Stalin's death. During the two "Khrushchev" 5 Year Plans (1956-65), fishery investments doubled from 144 million rubles a year to over 290 million. At the same time, the new political climate made possible several initiatives in West European countries. Negotiations for the purchase of new vessels were concluded with the United Kingdom (1954) West Germany (1955), and other countries. Additions of new vessels made possible a preplanned expansion into new fishing grounds all over the world and necessitated a significant change in priority investments.

A dramatic switch occurred in the mid-1950's in the type of programs financed by fishery investments. Until then, about half of the total annual investment was spent on building the fleet; the other half was used to build "shore plants" (ports, cold-storage, processing plants, et cetera). During the subsequent 10 years (1956-65) investments allocated for the build-up of the fishing fleet amounted to 78 percent of total fishery investments (fig. 1). These large sums were spent on the design and development of several new classes of fishing vessels, including the large and medium stern factory trawlers and, more recently, the catamaran fishing trawler. It was during these 10 years that the U.S.S.R. more than doubled the tonnage of her fishery fleet, entered most major distant-water fisheries, including the grounds off the United States, and became a major fishery power with world-wide interests.

Fig. 1 . Annual capital investments in Soviet fisheries, in percentage of fleet and shore-based plant investments; 1928-1975, (in percent of total).



Since 1966, this one-sided investment policy has changed somewhat, although 69 percent of all investments continued to be spent for fishing and fishery support vessels during the 1966-70 period. It is expected that during the 1970's the Soviets will switch their priorities once again and increase investment capital for programs aimed at perfecting the "shore facilities". Several new fishing ports were constructed in the early 1970's, and modernization of cold-storage plants and automation of processing plants are becoming major investment objectives.

In the last 20 years, the comparatively small volume of capital investment in shore-based enterprises, ship repair yards and port facilities, when compared to investment in the fishing fleet, has resulted in a rising disproportion between the development of the fleet and shore-based processing and support operations. A modern and technologically advanced fishing fleet operates on the high seas processing or semiprocessing up to 90 percent of the catch taken. This contrasts, however, with the inability of transport facilities and processing plants on shore to handle the catch efficiently once it reaches them. The result is spoilage and waste as products are held up in transit or improperly stored while awaiting distribution. A further consequence of the inadequate on-shore investment is the increased idling of fishery vessels in ports, ship repair time exceeding the planned periods, and the resulting under-utilization of the fleet.⁶

During the ninth 5 Year Plan (1971-75), industry planners are hoping to alleviate some of these discrepancies between the shore plants and the fleet by increasing the amount of capital spent on ship repair yards, port facilities, and processing plants. However, "replenishment of the fleet" still remains one of the major tasks of the Plan as new classes are continually added to the already long list of Soviet fishing vessels.

THE FISHERIES CATCH

During the last 25 years, Soviet fishermen have been remarkably successful in adding to the country's fisheries catch. Increasing at an average annual rate of about 18 percent, the 1974 total Soviet catch of fish, shellfish, marine mammals, and other aquatic animals and plants amounted to 9.6 million metric tons (11.1 billion pounds), or 450 percent more than the 1.8 million tons which were harvested in 1950. This large increase was made possible by a spectacular build-up of the Soviet fishery fleet, which includes now over 850 vessels supporting far-flung harvesting operations conducted by almost 3,500 fishing vessels⁷ throughout the world's oceans. (For details see the chapter, "Soviet Fisheries Fleet; a Statistical Review.")

The Soviet fisheries catch is increasing much more rapidly than the world's catch and constituted about 14 percent of the latter in 1973, the latest year for which comparative data are available.⁸ From 1950-73, the world's fisheries catch increased at an annual rate of

⁶ During 1972, the "nonoperational" time of all large stern trawlers, the most modern and efficient vessels in the Soviet fleet, amounted to 27.3 percent. (V. Pozdniakov in *Politicheskoe Samoobrazovanie*, No. 12, 1973)

⁷ Fishing vessels are equipped with gear to catch the fish. Fishery support vessels have no fishing gear and do not catch fish. Their function is to provide support to fishing vessels by receiving their catches, supplying stores, fuel, water, etc.

⁸ In 1965, the Soviet fisheries catch was only 9.5 percent of the world's.

6.7 percent by a total of 154 percent (from 25.9 million tons to 65.7 million tons); during the same period of time, the Soviet catch increased at an annual rate of 17.9 percent by a total of 413 percent (from 1.7 to 9 million tons). The total world investment in fisheries is not available, but it is believed that it is, on a pro-rated basis, considerably more modest than the huge Soviet fishery investments which currently exceed \$1 billion per year. It was the large infusions of investment capital over the past 25 years that made possible the domestic construction and purchases abroad of numerous new fishing vessels with resultant increases in the harvested catch.

The current plans provide for a 1975 catch of 10.3 million tons, 700,000 tons more than in 1974. Preliminary data indicate that the 1975 fishing season was proceeding smoothly: During the first half of 1975, Soviet fishermen exceeded the planned January-June catches by 200,000 tons,⁹ a certain indication that the total catch will exceed 10 million tons for the first time and that the fulfillment of the 1975 catch plan is probable.¹⁰

COMPARISON WITH OTHER MAJOR FISHING COUNTRIES

The Soviet Union is rapidly approaching the time when it will become the largest fishing country in the world. It has had the largest fishing fleet since the mid-1960's, but because of the much lower average productivity of its fishermen, it continues to lag behind Japan in terms of catch. (See table 1.)

⁹ Sovetskaya Latviya, July 12, 1975.

¹⁰ The 5 Year Plan for 1971-75 provided for a total Soviet annual catch of 10.3 million tons by the end of 1975. The accomplishment of fulfilling the 5 Year Plan is an important political consideration in the Soviet Union.

Table 1. World fisheries catch, by selected countries and years;
1938-1975^{1/}.

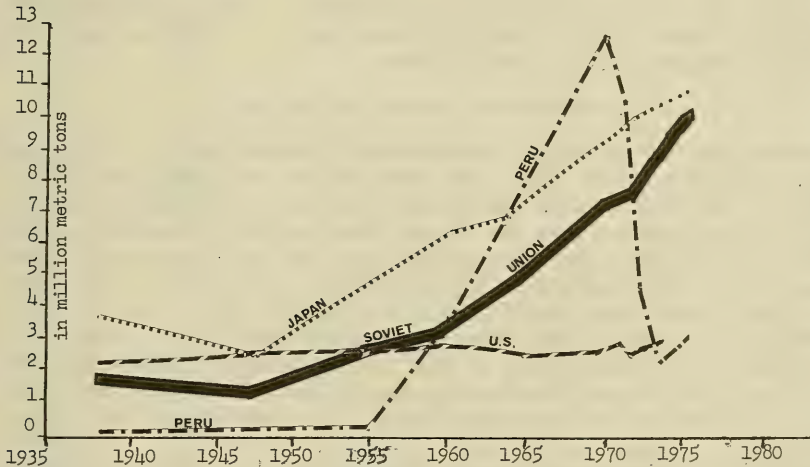
(in thousand metric tons)

<u>YEAR</u>	<u>JAPAN</u>	<u>USSR</u>	<u>U.S.</u>	<u>PERU</u>
1938	3,689.7	1,523.0	2,260.1	23.4
1948	2,526.2	1,485.0	2,416.6	84.1
1955	4,921.2	2,495.0	2,790.4	235.5
1960	6,207.1	3,051.0	2,814.7	3,727.0
1965	6,928.8	5,099.9	2,696.2	7,631.9
1970	9,366.4	7,252.2	2,776.5	12,612.9
1971	9,949.6	7,337.0	2,819.5	10,606.1
1972	10,272.6	7,756.9	2,649.5	4,768.3
1973	10,701.9	8,618.7	2,669.9	2,299.3
1974	10,773.4	9,235.6	2,743.7	4,149.9
1975 ^{2/}	11,000.0	10,000.0	n.a.	3,300.6

1/ These catch data are given as each country reports them to the FAO in Rome. Both Japan's and the USSR's data do not include marine mammals and other aquatic products (see chapter III C for details).

2/ Estimated.

Fig. 1. World fisheries catch, by selected countries; 1938-1973



Prepared by: International Fisheries Analysis, Office of International Fisheries, NMFS, NOAA, Commerce.

The three largest fishing countries in the world were at one time Peru, Japan, and the U.S.S.R. (The People's Republic of China is reportedly in the same league, but its Government refuses to publish any meaningful catch statistics and, as a result, no one knows precisely what its fisheries catch is. FAO estimates it at about 7 million metric tons. For purposes of this discussion, we shall leave out the PRC.)

After the occurrence of "El Niño"¹¹ in the early 1970's and the evident overfishing in the late 1960's, Peruvian catches decreased rapidly. The fishing industry of Peru has been almost entirely dependent on the anchovy catch since 1955, when Peruvian investors realized that large stocks of anchovy off its coast could be utilized for fishmeal which was in growing demand on the world markets. With resultant heavy investment in vessels and reduction plants, the Peruvian catch increased from a few hundred thousand metric tons in 1955 to over 12 million tons in 1970.

The unexpected demise of Peru as the largest fishing nation of the world leaves Japan as the Soviet Union's only major competitor for the fisheries catch of the world.

Figure 1 shows graphically the status of the race between the two world fishery giants—Japan and the U.S.S.R. They were running neck-and-neck until 1973 when a large increase in the catch lifted the Soviet statistical curve upward on a collision course with that of Japan. It is expected that the Soviet Union will become the world's largest catcher of fish and shellfish sometime before 1980, and possibly as early as 1977.

Unlike the dramatic fluctuations of Peru, or the steady increases scored by Japan and the Soviet Union, the U.S. fisheries catch has remained stagnant for the past 30 years.

CATCH IN HISTORICAL PERSPECTIVE

Soviet national statistical data provide a reliable image of the total Soviet fisheries catch. They are collected for the years 1913-74 in table 2. The first column (total catch) is also graphically presented in fig. 2. One can see how the Soviet fisheries catch languished during World War I, the Civil War period, and the early years of Soviet power. The New Economic Policy (NEP) in the late 1920's gave it a spurt which was quickly spent in the difficult years of Stalin's political terror and purges. After the end of World War II, considerable progress was made, but it was not until Stalin's death that the attention of the Soviet Government was turned to fisheries (and other marine industries) on a priority basis. The foundations for a large investment program were laid during Khrushchev's 7 Year Plan (1959-65)¹² which began to pay dividends soon. By the early 1960's, the catch curve was beginning to climb toward the 10 million mark with a geometric precision, briefly interrupted in 1971 when bad weather caused the catch to be smaller than the year before (column 2 in table 2).

¹¹ "El Niño" refers to a natural phenomenon that brings about changes in the Humboldt Current flowing off the west coast of South America. An influx of warm water into the current affects the usual habitat of plankton and fishery resources.

¹² Average annual investments in the Soviet fishing industry during 1956-60 were about 60 million rubles. During 1961-65, they rocketed to 384 million rubles per year—a six-fold increase.

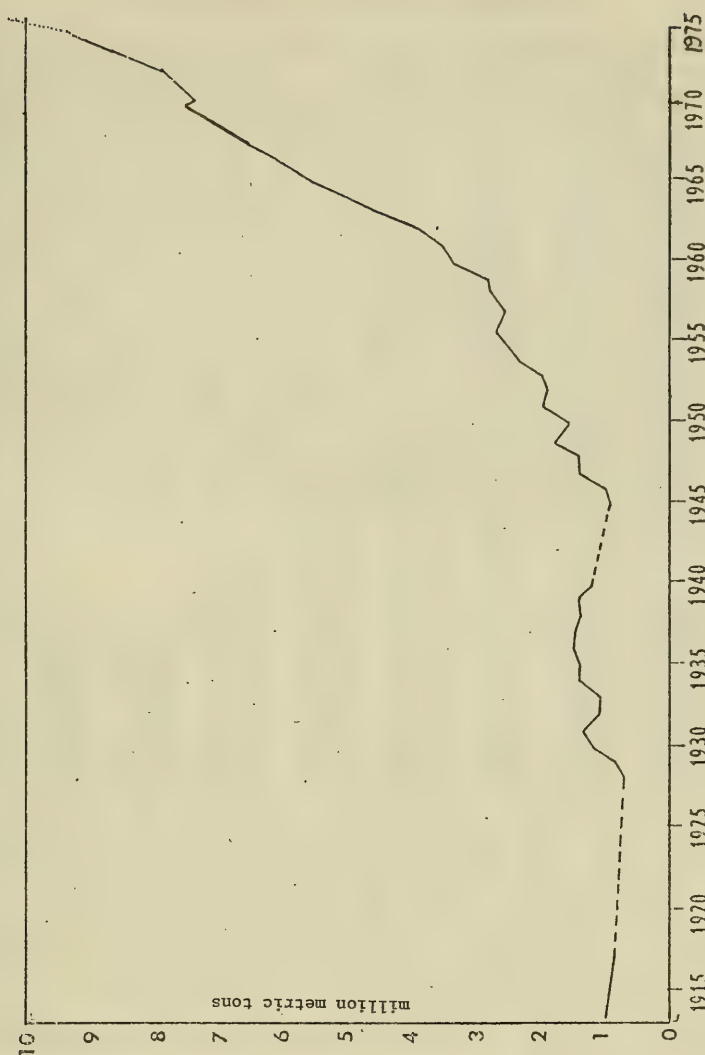
Table 2 . U.S.S.R. Fisheries catch; by year 1928-1974.

YEAR	Total Catch (in 1,000 metric tons)	Change From Previous Year (1,000 t)	Percent of Change	Catch Data Given To FAO (1,000 t)	Difference of FAO Data From Total Catch (1,000 t)	Difference as a Percentage of Total Catch
1913	1,051	n.a.	n.a.	n.a.	n.a.	n.a.
1917	893	-158	-15.0	-	-	-
1920	257	-636	-71.2	-	-	-
1928	840	583	227.0	-	-	-
1929	956	116	13.8	-	-	-
1930	1,283	327	34.2	-	-	-
1931	1,441	158	12.3	-	-	-
1932	1,333	-108	- 7.5	-	-	-
1933	1,303	- 30	- 2.3	-	-	-
1934	1,547	244	18.7	-	-	-
1935	1,520	- 27	- 1.7	-	-	-
1936	1,631	111	7.3	-	-	-
1937	1,609	- 22	- 1.4	-	-	-
1938	1,542	- 67	- 4.2	1,523	19	1.2
1939	1,566	24	1.6	n.a.	n.a.	n.a.
1940	1,404	-162	-10.3	-	-	-
1941	(e) 1,301	-103	-7.3	-	-	-
1942	(e) 1,046	-255	-19.6	-	-	-
1943	(e) 1,230	184	17.6	-	-	-
1944	(e) 1,235	5	.4	-	-	-
1945	1,125	-110	- .8	-	-	-
1946	1,208	83	7.4	-	-	-
1947	1,534	326	27.0	(e) 1,500	(e) 34	(e) 2.2
1948	1,575	41	2.7	1,485	90	5.7
1949	1,953	378	24.0	(e) 1,850	(e) 103	(e) 5.3
1950	1,755	-198	-10.1	(e) 1,655	(e) 100	(e) 5.7
1951	2,142	387	22.0	(e) 2,042	(e) 100	(e) 4.7
1952	2,107	- 35	- 1.6	1,888	107	5.1
1953	2,195	- 88	4.2	1,983	212	9.7
1954	2,505	310	14.1	2,258	247	9.9
1955	2,737	232	9.3	2,495	242	8.8
1956	2,849	112	4.1	2,616	233	8.1
1957	2,761	- 88	- 3.1	2,531	230	8.3
1958	2,936	175	6.3	2,621	315	10.7
1959	3,075	139	4.7	2,756	319	10.4
1960	3,541	466	15.2	3,051	490	13.8
1961	3,724	183	5.2	3,250	474	12.7
1962	4,168	444	11.9	3,616	552	13.2
1963	4,681	513	12.3	3,977	704	15.0
1964	5,171	490	10.5	4,476	695	13.4
1965	5,774	603	11.7	5,100	674	11.7
1966	6,093	319	5.5	5,349	744	12.2
1967	6,538	445	7.3	5,777	761	11.6
1968	6,784	246	3.8	6,082	702	10.3
1969	7,082	298	4.4	6,498	584	8.2
1970	7,828	746	10.5	7,252	576	7.4
1971	7,785	- 43	- 0.5	7,337	448	5.8
1972	8,209	424	5.4	7,757	452	5.5
1973	9,005	796	9.7	8,619	386	4.3
1974	9,600	595	6.6	9,236	364	3.8

(e) - estimated. Prepared by: Office of International Fisheries (F41),
NMFS, NOAA, Commerce.

The annual increases or decreases in the total Soviet catch are also given in table 2 both in absolute figures (column 2) and in percentages of change (column 3). As was already evident in the graph (fig. 2), Soviet fishery catches sustained many ups and downs during the Stalin era, but in the post-Stalin years (1953-75) they decreased only twice and only by small amounts: in 1957 and in 1971.

Fig. 2. Soviet fisheries catch in historic perspective
1913-1975



Prepared by: International Fisheries Analysis, Office of International Fisheries,
NMFS, NOAA, Commerce.

COMPARISON WITH FAO CATCH DATA

In addition to providing complete catch data to the Soviet national statistical office, the U.S.S.R. Ministry of Fisheries also provides catch data to the Food and Agriculture Organization (FAO) of the United Nations in Rome. These data are provided to FAO in accordance with FAO statistical requirements and do not include the catch of marine mammals (in metric tons) and the amounts of marine plants harvested. This is the reason why the FAO data are always lower than the actual total Soviet fisheries catch which is published only in Russian. The data submitted to FAO are given in table 2 (column 4) with calculations of the difference between the two sets of data. This difference is the approximate Soviet catch in metric tons of Antarctic and Pacific whales, various species of fur seals and the harvest of marine algae and other plants. An attentive reader will note that, as the Soviets began to expand their Antarctic whaling in the late 1950's and early 1960's¹³ the difference between FAO data and Soviet national catch data increased. In recent years, when the International Whaling Commission, prodded by the United States, began to decrease the catch quotas for Soviet and Japanese whale fishermen, this difference has grown progressively smaller.

MAJOR FISHING AREAS

In 1913, Russian fishermen obtained their catches mostly from inland waters. Only 17.3 percent of the total catch was taken on the high seas, mostly in the Barents, Baltic and Black Seas, and in the Pacific.

During the 1917-41 period, Soviet fishermen had already begun to shift increasingly to these open seas. In World War II, however, the high seas Soviet European fleet was practically wiped out; only fishery vessels operating in the Pacific were saved.

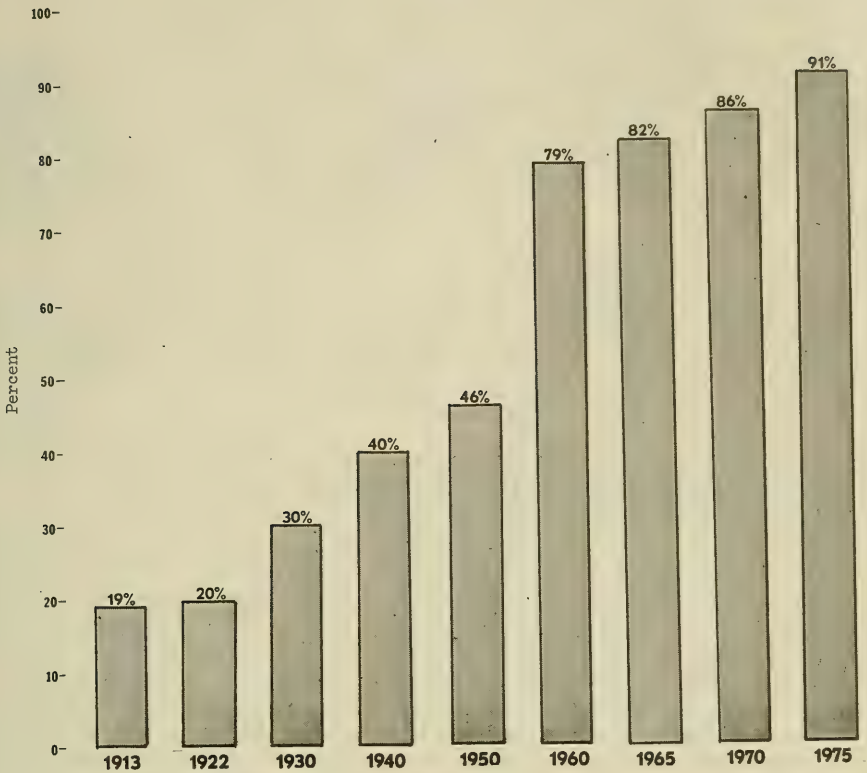
Wartime destruction slowed Soviet expansion into the high seas only temporarily. The Pacific fishing fleet was reinforced and a new Baltic fleet was organized, mostly from vessels seized by victorious Soviet troops. By 1946, the high seas provided 46 percent of the total catch, a percentage that has increased ever since. (See fig. 3.) In 1975, over 90 percent of the total Soviet catch will be obtained from international waters and the most important Soviet fishing grounds today are adjacent to foreign coasts (see fig. 4).

During the past 25 years, Soviet fisheries have been characterized by two major trends:

1. In the Pacific, they began to expand in the 1950's to the east and southeast off the coasts of the United States (1958—Alaska, 1966—Pacific Northwest, 1972—California);

¹³ Between 1958 and 1963, the U.S.S.R. added 5 whaling motherships to its fishing fleet: three went to Antarctica, the other two operate in the North Pacific.

Figure 3. The Soviet high-seas catch as a percentage of the total catch; 1913 - 1975.



Source: Rybnoe Khoziaistvo and Vodnii Transport, July 12, 1975 (for 1975 data).

Prepared by: International Fisheries Analysis Division, Office of International Fisheries, National Marine Fisheries Service, NOAA, Commerce.

Fig. 4. U.S.S.R. Major high seas fishing grounds



Prepared by: International Fisheries Analysis Division, Office of
International Fisheries, NMFS, NOAA, Commerce.

2. In the Atlantic, the expansion went first southwest (off Canada—1956, off New England—1961, off Mexico—1962) and then south (off West Africa—1962, off Argentina—1966).

Both of these major moves had one common characteristic: they were directed away from Soviet shores. The introduction of large vessels with refrigeration and (later on) freezing capability, canning lines, and fishmeal reduction plants, as well as the addition of mother-ships, floating canneries and other longrange support vessels, have been instrumental in this expansion of fishing operations. Catches by major fishing areas are illustrated in figure 4a.

Atlantic Ocean

Catch statistics in table 3 show that the Atlantic Ocean remains the basic fishing ground of the Soviet Union. In 1973, almost 4.6 million metric tons, or 53 percent of the total catch, was harvested from Atlantic waters. This percentage has been on the increase during the past 10 years (from 46 percent in 1964). As the total Soviet high seas catch has increased, the ratio of the Atlantic catch has increased even more (fig. 5).

The Soviet catch in the Northwest Atlantic doubled in the last 10 years to 1.4 million tons in 1973 as U.S.S.R. fishermen moved in force into the traditional fishing grounds of U.S. and Canadian fishermen. The fisheries of this area are managed by the International Commission for the Northwest Atlantic Fisheries (ICNAF), of which the U.S.S.R. has been a member since 1956. The Commission, consisting of 17 member countries, was established in 1949 to investigate, protect and conserve the fisheries of the Northwest Atlantic by establishing catch quotas for certain species of fish which could be taken from the treaty area. During the last few years, so many new nations have increased their ICNAF catch so rapidly that a serious overfishing problem developed, endangering several key species (haddock, mackerel, herring, and flounder). As a result, the Commission is drastically lowering the total allowable catch quotas. During the recent (September 1975) special meeting in Montreal, the Commission reduced the 1976 catch quotas in the waters off U.S. coasts (ICNAF subareas 5 and 6) to 650,000 tons, or by 22 percent.¹⁴ At the same time, Canada closed all of its Atlantic ports to the Soviet fishing fleet and kept them closed until the Soviets promised, in bilateral negotiations, to reduce their future catches off Canada by 40 percent (for details, see appendix 3). It can therefore be safely predicted that Soviet catches in the Northwest Atlantic, having reached their zenith in 1973, will continue to decline.

A similar situation exists in the Northeast Atlantic which provides almost one third of the Soviet Atlantic catch and one-fifth of the total catch. (See fig. 7.)

¹⁴ The total allowable catch in the ICNAF subareas 5 and 6, covering the waters from the Gulf of Maine to Cape Hatteras, decreased from 924,000 metric tons in 1974 to 850,000 tons in 1975 (or by 8 percent) and to 650,000 tons in 1976 (or by 30 percent of 1974 quota).

Fig. 4a. Soviet fisheries catch, by major fishing areas, 1973.
(in million metric tons)

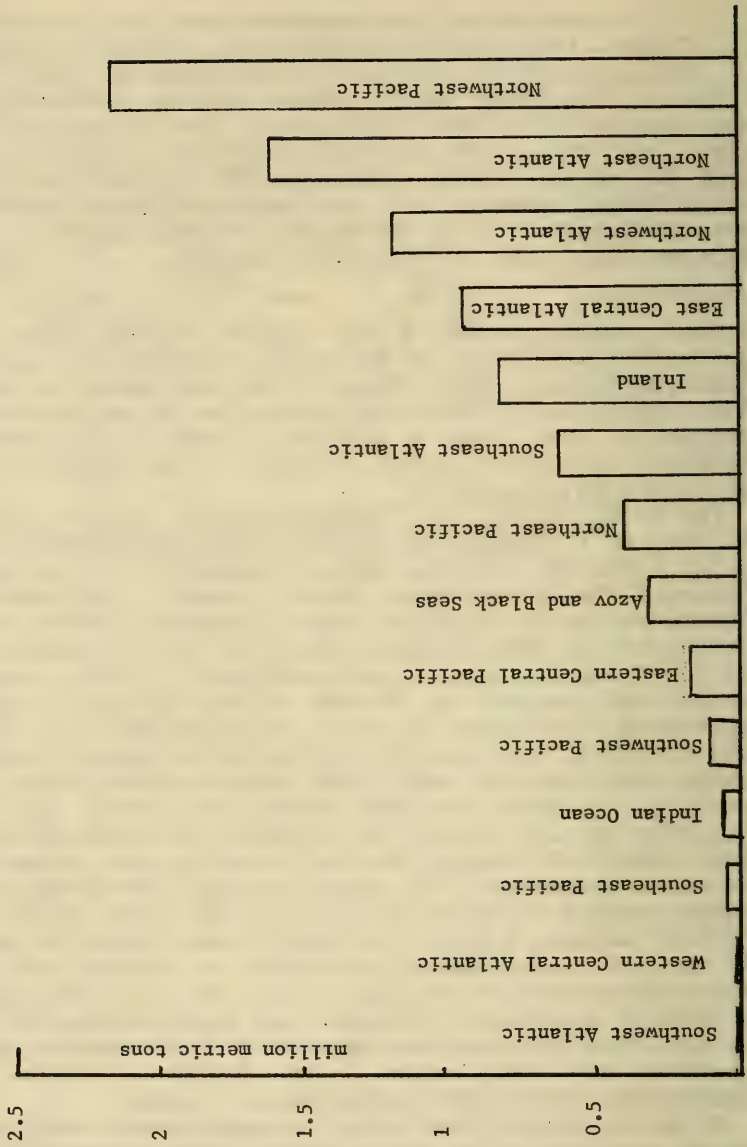


Table 3. Soviet catch by main fishing areas. 1964-1976. (In 1,000 metric tons)

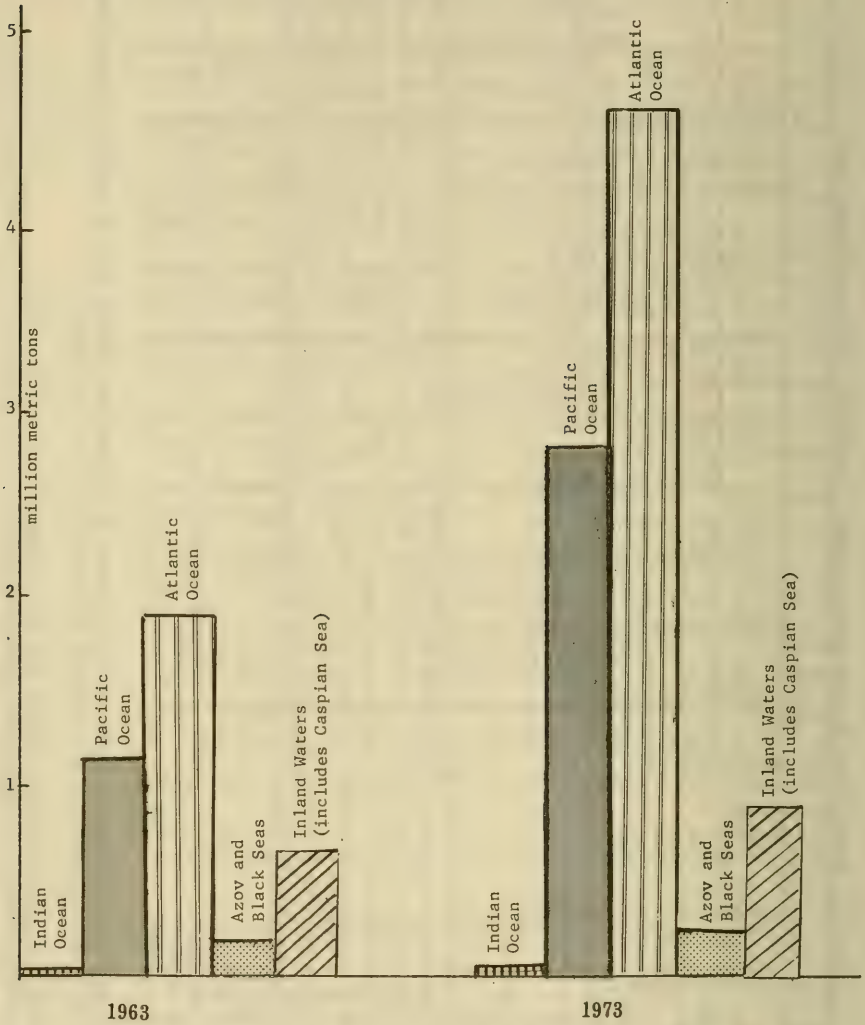
Fishing area	1976	1975	1974	1973	1972	1971	1970	1969	1968	1967	1966	1965	1964
Atlantic, Northwest			1,157.6	1,357.4	1,150.0	1,021.7	811.5	982.7	794.0	623.1	842.3	886.5	645.5
Atlantic, Northeast			1,997.0	1,611.1	1,272.1	1,377.5	1,565.9	1,469.7	1,416.1	1,118.7	1,147.7	1,048.0	1,076.0
Atlantic, Western central			25.6	8.8	73.8	11.2	negl.	4.8	6.8	23.9	37.4	17.3	12.6
Atlantic, Eastern central			1,145.0	942.7	848.8	789.8	612.5	569.7	318.6	153.5	79.3	82.4	163.8
Atlantic, Southwest			12.9	6.1	4.6	26.2	420.6	92.6	189.8	677.7	73.3	-	-
Atlantic, Southeast			447.5	648.6	719.8	438.6	122.6	107.2	181.5	251.0	361.2	360.7	166.8
Atlantic, total			4,785.0	4,574.7	4,069.1	3,665.0	3,833.1	3,526.7	3,209.8	2,847.9	3,511.2	3,394.9	2,064.7
Pacific, Northwest			2,358.1	2,232.9	1,434.2	1,562.1	1,447.6	1,394.0	1,302.2	1,204.2	1,091.6	1,114.6	922.8
Pacific, Northeast			701.3	379.8	869.2	656.0	747.6	642.8	434.3	569.1	543.6	476.1	517.5
Pacific, Eastern central			22.2	138.1	12.9	1.9	20.2	25.4	52.8	-	-	-	-
Pacific, Southwest			88.8	74.3	53.7	10.4	-	-	-	-	-	-	-
Pacific, Southeast			-	39.2	35.1	-	-	-	-	-	-	-	-
Pacific, total			3,170.4	2,864.3	2,405.1	2,230.4	2,215.4	2,062.2	1,789.3	1,773.3	1,635.2	1,590.7	1,440.3
Indian Ocean			135.8	44.2	129.0	242.4	47.0	20.8	10.3	38.2	75.7	36.1	4.6
Arctic			-	-	-	-	0.8	3.5	7.4	1.2	-	-	-
Azov & Black Seas			371.5	285.9	283.7	263.8	302.5	138.7	284.8	300.6	307.7	251.8	239.6
Inland ^{1/}			772.9	849.6	870.0	935.4	853.4	746.5	780.5	816.0	789.0	826.4	726.5
Total Soviet catch ^{2/}			9,235.6	8,618.7	7,756.9	7,337.0	7,252.2	6,498.4	6,082.1	5,777.2	5,348.8	5,099.9	4,475.7
Atl. catch as % of tot. catch			51.8	53.1	52.5	50.0	52.9	54.3	52.8	49.3	47.5	47.0	46.1
Pac. catch as % of tot. catch			34.3	33.2	31.0	30.4	30.5	31.7	29.4	30.7	30.5	31.2	32.2
Ind. O. catch as % of tot. catch			1.5	0.5	1.7	3.3	0.6	0.3	0.2	0.7	1.4	0.7	0.1
Arctic catch as % of tot. catch			negl.	negl.	negl.	negl.	negl.	0.1	0.1	negl.	negl.	negl.	negl.
Azov & B. Seas % of tot. catch			4.0	3.3	3.7	3.6	4.2	2.1	4.7	5.2	5.8	4.9	5.4
Inland catch as % of tot. catch			8.4	9.9	11.2	12.7	11.8	11.5	12.8	14.1	14.8	16.2	16.2

Source: TSNIITIRKh, Statisticheskie dannye o vidovom sostave i razmeshchenii ulovov SSSR po raionam Mirovogo okeana. Moscow 1971 for 1964-1970 and FAO Yearbook of Fishery Statistics for 1971-73.

^{1/} Includes Caspian Sea, Aral and Balkash lakes, and Siberian catch.

^{2/} Exclusive of whales, seals, and other marine products.

Fig. 5. U.S.S.R. Fisheries catch, by major fishing areas; 1963 and 1973
(in million metric tons)



Soviet Caribbean catches (Western Central Atlantic) are negligible. Most of the catch comes from the Campeche Banks off Mexico's Yucatan Peninsula.

The most rapid increase in Soviet catches during 1964-73 occurred in the Central Eastern Atlantic off the coast of West Africa. In 1964, this region contributed less than 3 percent of the total catch; by 1973, more than 11 percent of the Soviet fisheries catch, approaching 1 million tons, came from West African waters. Recent extensions of fisheries limits by several West African states will put a dent in the Soviet capability to exploit these waters. The Soviet Fisheries Ministry is fighting this trend by organizing joint ventures with local companies and extending fisheries assistance to West African governments.

The Soviet fishing in the Southwest Atlantic, off the coast of South America, has an interesting history. After having secured a fisheries base in Cuba in 1962 and having built a large modern fishing port there (1963-65), the Soviet fishing fleet could, logistically speaking, expand into the virgin waters of the Patagonian Shelf where large, unexploited fishery resources were available. Losing no time, the Soviets began to fish off Argentina in the summer of 1966 and caught 73,000 tons of fish, mainly Patagonian hake (table 3). The following year, an armada of Soviet fishery vessels appeared off Argentina.¹⁵ The intense fishing operations so provoked the Argentine Government that it proclaimed the extension of its fisheries zone out to 200 nautical miles.

The Soviet fleet, although officially advised of the new decess, delayed in leaving the Argentine-claimed waters. Finally, in June 1968, two large Soviet stern factory trawlers were ordered by an Argentine naval vessel to stop for boarding and seizure, but did not heed Argentine orders. They were shot at; after one was hit amidships, both surrendered and were escorted into an Argentine port. Following weeks of negotiations, the two trawlers were released, but the Soviet fleet had to leave the Patagonian Shelf. Their catch there, which in 1967 amounted to 677,000 metric tons, was reduced to negligible proportions the following year.

The Soviet fleets moved northward off Uruguay and when that country declared a 200-mile fisheries zone, continued their operations off Brazil, where they caught 420,000 tons of fish in 1970 (fig. 6).

¹⁵According to Argentine press reports (which were not always reliable when discussing Soviet fishing activities), the total number of Soviet fishery vessels off Argentina and Uruguay in 1966 exceeded 200.

Fig. 6. Soviet fisheries catch in the Southwest Atlantic, 1965-1975.
(in 1,000 metric tons)



Source: FAO, Yearbook of fishery statistics, various years.

But the Soviet fishing off Brazil was similarly short-lived. In early 1971, that country began to enforce its newly-claimed fishery limits of 200 miles and closed off its coastal waters to foreign fishermen. Negotiations between Brazil and several countries which traditionally fished off her coasts were soon initiated, but it is believed, that the U.S.S.R. has not approached the Brazilian Government to obtain such privileges. As matters stand now, there are no opportunities for Soviet fleets to fish off eastern South America. In 1973, the U.S.S.R. caught there only 6,000 tons, a negligible contribution to its total catch (less than 1/10th of 1 percent).

In the Southeast Atlantic, most Soviet fishing takes place off the coasts of South Africa, Namibia, and Angola.

Pacific Ocean

The Pacific, the second most productive fishing area for Soviet fishermen, contributed about 2.8 million tons to the total catch in 1973, or one third of the total. Most of this catch came for the Northwest Pacific encompassing the Sea of Okhotsk, the Sea of Japan and the waters off Japan, the Kurile Islands, and the Kamchatka Peninsula. (See fig. 7.)

In the northeast Pacific region, which includes fishing grounds in the Bering Sea, the Gulf of Alaska, and off the Pacific northwest (Washington and Oregon states), the Soviets harvest in excess of 0.5 million tons. In this area, as well as in the northwest Pacific, the U.S.S.R. is beginning to catch large amounts of Alaska pollock (1.3 million tons in 1973) in competition with the Japanese (3 million tons) and Korean (0.3 million tons) fishermen. Much will depend on the status of this species in determining whether the Soviet catches in the northern Pacific will continue to expand. Some U.S. scientists believe that the Alaska pollock catches are rapidly approaching the level of maximum sustainable yield and that limitations on their uncontrolled exploitation will become necessary to prevent the depletion of the species.

Soviet catches in the eastern central Pacific consist mostly of Pacific hake taken off California and the Pacific Northwest. This fishery has been expanding rapidly since 1973 and substantially larger catches were taken in 1974 and especially in 1975. Soviet fishing off Mexico and the western coasts of Central American countries is minimal. Despite its increasing significance, the eastern central Pacific contributed only 5 percent to the Soviet Pacific catches (and less than 2 percent of the total catch).

In the Southwest Pacific, off Australia and New Zealand, the U.S.S.R. sent over 20 research and exploratory vessels in late 1965¹⁶ to determine what fishery resources were available. Commercial fishing in this area, begun in 1971, is increasing rapidly, and will probably continue to do so.

What is being caught by the Soviets off the western coast of Latin America in the southeast Pacific is not known. Chile, Peru, and Ecuador all claim 200-mile fishery zones which the Soviets generally respect. It is possible that the small catches (39,000 tons) represent fish which the Allende Government in Chile permitted the Soviets to catch within the Chilean 200-mile zone in exchange for fisheries assistance.

¹⁶ The project was known as the "Lira Expedition" named after the stern trawler Lira.

Indian Ocean and inland fisheries

In the early 1960's, the Soviet Ministry of Fisheries planned to greatly expand its catches in the Indian Ocean, where hitherto no fishing had been done by the Soviet Union. The plans provided for a 200,000 ton catch by 1965. This timetable was repeatedly delayed, but in 1963, Soviet commercial vessels from the Black Sea Administration did begin to fish in the Arabian Sea and the Persian Gulf. The catches increased rapidly to 76,000 tons in 1966, but when, in June 1967, the Arab-Israeli war caused the closure of the Suez Canal, the Soviet plans suffered a setback. Catches were minimal in the next 2 years (table 3). After the Soviet Ministry of Fisheries concluded several contracts with Pakistan and other countries adjacent to the Indian Ocean to explore the availability of fishery resources off their coasts, the catches suddenly went up to over 240,000 tons in 1971. The contract with the Pakistanis was soon terminated and the Soviet catches decreased rapidly to only 44,000 tons in 1973. With the opening of the Suez Canal in mid-1975, a new Soviet attempt to increase the Indian Ocean's contribution to the total catch, which in 1973 amounted to only one-half of 1-percent, must be expected.

In the Azov and Black Seas as well as in the Soviet inland waters, the fisheries catch is relatively stable. It appears that the level of maximum sustainable yield has been reached in both of these traditional fishing areas: each time the Soviet fishermen attempt to increase their catch, the fish resources of the area cannot sustain the increased exploitation and the catches begin to decrease. These cyclical movements are shown statistically in table 3, and graphically in figure 8.

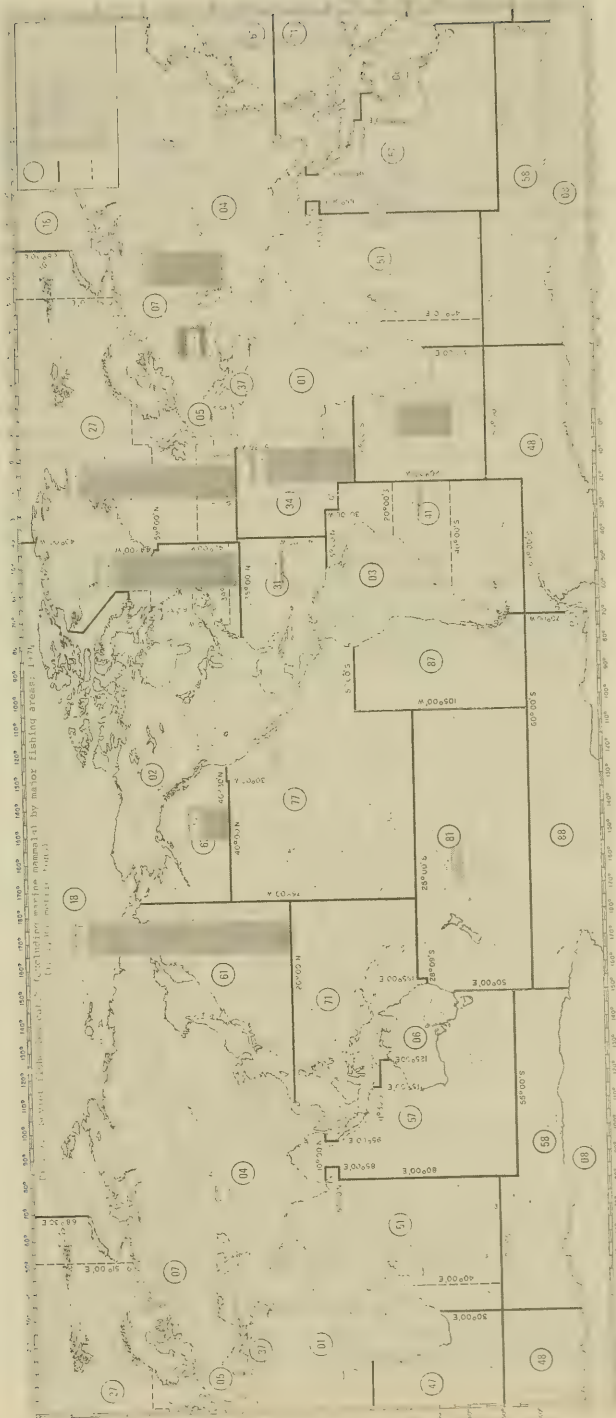
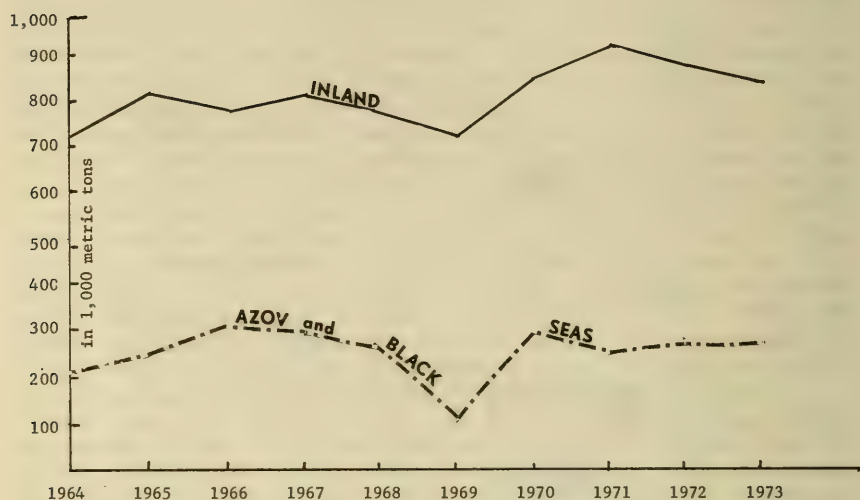


Fig. 8. Soviet fisheries catch in Inland waters, and in the Azov and Black Seas, 1973.
(in 1,000 metric tons)



Prepared by: International Fisheries Analysis Division, Office of International Fisheries, NMFS, NOAA, Commerce.

THE FISHING FLEET

INTRODUCTION

In Tsarist Russia before World War I, fishing was mainly conducted from small sailing craft or even from row boats operating close to the shore. Deep sea fishing was conducted in the Baltic and Barents Seas. After the 1917 Revolution, the new Communist regime began to mechanize the fishing fleet by introducing diesel and gasoline-powered craft. In March 1920, the Government established the first Fisheries Administration, the White Sea Administration of Fisheries and Marine Mammal Harvesting. This organization received the first 12 fishing vessels which were converted from naval mine sweepers.

When the Soviets began to plan their economy, the establishment of a trawler fleet to fish in the Barents' Sea was given priority in the first 5 Year Plan (1928-32). In the second and third 5 Year Plans, a further modernization of the fishing fleet was foreseen, but this expansion was delayed by Stalin's purges in the 1930's and seriously interrupted by World War II which erupted in June 1941.

During that war, most of the Soviet fishing fleet was destroyed by German airplanes or by naval action. Most losses occurred in the Caspian and the Black Sea during the 1942 and 1943 German offensives. The Murmansk fishing fleet was also decimated. Only the small and antiquated Far Eastern fleet remained intact.

When the Second World War ended, the Soviet fishing industry, which had produced a total catch of 1.4 million metric tons in 1940 was almost completely destroyed. More than 5,000 fishing vessels were either sunk or extensively damaged.

To rebuild the fishing fleet rapidly, the Soviet fourth 5 Year Plan (1946-50) provided for the standardization of the construction of about 150 side trawlers and over 13,000 smaller fishing craft. Nevertheless, in the first years after World War II, only a small part of the Soviet shipbuilding capacity was directed to the construction of fishing vessels. Only in the mid-1950's did the Soviets seriously begin to construct fishing vessels in domestic shipyards.

During the early post World War II years, most of the Soviet fishing vessels were built in East Germany where the Soviet Army was the occupying force, and sent to the U.S.S.R. as war reparations. GDR remains one of the chief suppliers and it is estimated that by 1975, the East German shipyards had delivered to the Soviet fishermen more than 1,800 fishing and fishery support vessels, having a capacity of over one million gross registered tons, or about one sixth of the total current Soviet gross tonnage.

The reconstruction of damaged port facilities and the buildup of the fishing fleet were made more difficult by extensive shipbuilding programs of the Red Navy. As a result, the Soviet Union bought many fishing vessels from abroad, especially from the neighboring socialist states where the Soviet Union had considerable political and economic leverage and could request the building of the vessels for its own fleet on a priority basis.

In addition to the East German deliveries, Poland's shipyards also began to produce fishing vessels for the Soviet Union. Other purchases were made in France, the Netherlands, United Kingdom, Sweden,

Finland, Denmark, Japan, the Federal Republic of Germany, and other countries. At the present time, the Soviet Union is building a larger proportion of its fishery vessels in domestic shipyards; however, foreign purchases still comprise a large and the most modern part of the fleet.

One of the deciding factors in the development of the Soviet fishing fleet has been the need to operate on grounds progressively farther away from the U.S.S.R. coasts. In 1950, the average distance for the Soviet fleet to the fishing grounds was only 200 miles. This distance increased to 1,655 miles in 1965 and to over 4,000 miles in the late 1960's. By 1975, 90 percent of the total catch was brought in by the high seas fleet. Industrial pollution and overfishing have been major causes for the drop in the coastal and freshwater catch, and have resulted in the Soviet fishing industry having to look farther afield for profitable grounds.

Two major innovations which have contributed to the rapid increase in high-seas catch are the stern factory trawler and the flotilla fishing method. Prior to the mid-1950's, fishing vessels had rather limited catch capability because their nets were hauled in over the sides. With too large a catch a side trawler would become unstable, so small nets were used, and the catch was therefore limited.

The most important development in Soviet fisheries has been the invention in the United Kingdom of a new method of high-seas fishing whereby the vessel has a stern ramp through which the catch is brought aboard. These vessels, called stern factory trawlers, have greater stability and as a result are more seaworthy. Such a vessel can use much larger nets, hauling in about six times as much fish as a side-net trawler. These vessels come equipped with canning and freezing equipment on board for immediate processing of the incoming catch, and for reducing incidental catches and offal into fish meal for use as fertilizer. They can remain at sea and fish for up to 1 year with periodic crew rotation, resupplying, and refueling.

A second very important development is the concept of flotilla fishing. The Soviets adopted it after studying Japanese fishing operations. A fleet fishing far from its home port must be able to remain at sea for extended periods of time to meet the costs of transit to and from the grounds. Fishing vessels must be supplied with fuel, water, salt, fishing gear, food, and other provisions, and fleet personnel must be provided medical care and recreational facilities. "Flotilla"-type operations satisfy all these conditions. A flotilla of fishing vessels is under the control of a "Fleet Manager" (*Nachalnik Flota*) whose headquarters are aboard a large mothership, which receives the catch from the trawlers, processes or semiprocesses it, and passes it along to refrigerated fish carriers or cargo vessels for transportation to home ports. A mothership also accepts fuel and supplies from tankers and from supply ships for distribution among the vessels of the flotilla. The large factory stern trawlers often operate independently, providing their own processing and transport services.

The Soviet fishing fleet as a whole can be subdivided into five basic vessel groups: Motherships, fish processing and carrier vessels, factory trawlers, side trawlers and other fishing vessels. A sizable whaling fleet operates in Antarctica and in the Pacific.

Mothership-class vessels are designed to work not only with their own small "catcher boats," but also with a flotilla of other fishing vessels. The mothership can carry from 6-14 small catcher boats which are lowered to the sea once the fishing grounds are reached. The ship's factory facilities are equipped for canning the catch and producing fishmeal and oil. The best known and most advertised Soviet mothership, though by no means the most efficient, is the recently constructed *Vostok*.

A typical fish carrying and processing vessel is designed to receive, freeze, and transport processed or whole fish caught by trawlers operating on grounds far from Soviet ports. Some classes of these vessels are equipped to produce fishmeal, or engage in specialized fisheries, but most of them are not used for these types of operations. Fish handling is often completely mechanized and automatically controlled. Huge derricks lift the catch from the trawlers at sea and transfer it to elevators situated in the hold of the refrigerated carrier. Conveyor belts inside the hold speed up handling and sorting. Automation of fish handling systems has been an important improvement on the more recent classes of transport and processing vessels.

Soviet large stern trawlers are a wide and varied group of vessels built in a number of countries such as Poland, the German Democratic Republic, Denmark, the Netherlands, the Federal Republic of Germany, and France. The first to enter the Soviet fleet were the large stern factory trawlers (BMRT's). The Soviets bought the blueprint from a U.K. shipyard, which constructed the first stern factory trawler (the *Fairtry*), and ordered 24 Pushkin-class stern trawlers from Kiel shipyards in West Germany in the mid-1950's. The vessels were copied and improved by the Soviet, Polish, and East German shipyards which soon began to mass-produce them. Today these three countries build as many as seven stern freezer and factory trawlers per month (of which Poland produces two, East Germany two, and the Soviet Union, three). These vessels are completely integrated fishing and processing units. After the catch is landed, it is either canned, frozen, or reduced into fishmeal, all aboard the same vessel. The large stern factory and freezer trawlers have become the backbone of the Soviet high seas fleet. More than 740 were operational by October 1, 1975.

During the immediate post-World War II years, small side trawlers made up the major part of the Soviet fishing fleet. Certain classes of these vessels had refrigerated holds or were equipped to store the catch either wet or salted and to produce seimprocessed fishmeal and fish oil. Many of these small, standard trawlers, although no longer typical, are still in use today, but they are rapidly being replaced by more modern and larger vessels.

Other principal trawler types include medium stern and side trawlers, some with refrigeration and some with freezer capacity. Until 1967, all Soviet medium trawlers had been side trawlers. The first medium stern trawler in the Soviet fleet was completed in 1967. This vessel served as the prototype for a new series of trawlers intended for operation in the temperate and tropical zones of the Atlantic, Pacific, and Indian Oceans. They are able to operate independently or as part of a flotilla, and to freeze and pack their own catch.

There are no indications that the U.S.S.R. intends to slow the expansion of its fishing fleet. In fact, Soviet Fisheries Minister Ishkov an-

nounced that during the current 5 Year Plan (1971-75), "expansion (is to) continue at the same rate as (during) the last two 5-Year Plans." According to Pravada, 900 new fishing vessels and 70 refrigerated transports and motherships have been added to the fleet during the 1971-75 period.

The estimates of the Office of International Fisheries, National Marine Fisheries Service, indicate that 4,450 high seas Soviet fishing vessels are now operational.

Several factors have contributed to recent modifications in the Soviet fishing fleet. The depletion of the fish stocks on traditional continental shelf grounds has forced Soviet planners to design vessels and equipment for deep sea fishing operations. Industry officials are also concerned with increasing the fleet's efficiency. The Japanese, with one-half the high-seas fishing tonnage, still manage to land more fish than the Soviet fleet. The heavy investment in fisheries development must therefore be justified by increasing labor productivity.

To improve efficiency, Soviet designers have incorporated many new ideas into the vessel classes earmarked for expansion in the 1970-80 period. For example, more stern freezer trawlers are being built so that fishing and processing can occur simultaneously. Processing is being automated as much as possible to lower the number of crew needed and speed up production; at the same time, maximum engine horsepower increases the number of fishing days and decreases the number of days in transit. Larger vessels are being constructed which stay at sea longer and carry more cargo. Trawling gear is being improved so that it will automatically deploy for maximum catch efficiency. A new type of fishing vessel, the *Atlantik-III* class "supertrawler," features many of these recent developments. This, the third in the series of *Atlantik* classes, was designed and built in East Germany.

The continued expansion of the Soviet fishing fleet seems to indicate that the industry is not ready to cut back on the total catch as environmental considerations seem to demand. Rather than limit themselves to conserve the resources, Soviet fishermen tend to keep moving to the most profitable grounds to maintain catch levels and fulfill quotas. Although high-level officials in the Ministry of Fisheries are beginning to stress marine and freshwater fish culture as the trend of the future in their policy speeches, indications are that the Soviet fleet will continue intensively fishing the world's oceans.

STATISTICAL REVIEW

Unlike most other nations, the Soviet Union does not publish meaningful statistics on the gross tonnage or the composition of its fishery fleet. The last time such data were given in some detail was in 1956 when the Food and Agriculture Organization (FAO) of the United Nations published a statistical review of the world's fishing fleets. This occurred just before the spectacular build-up of the Soviet distant water fishing fleet began. As a result, today these data have mostly an historical value. They are cited only to give an idea of the "giant steps" that the U.S.S.R. has made in the world's seas during the last two decades.

TABLE 1.—U.S.S.R. FISHING FLEET, BY TYPE OF CRAFT FOR SELECTED YEARS

Type of craft		1940	1948	1953	1954	1955	1956
Total	N	36,406	44,332	54,595	55,837	58,624	60,443
Powered	N	2,727	3,158	8,303	9,925	10,872	12,387
	P	123,900	243,200	610,700	725,300	834,200	982,600
Trawlers	N	107	329	1,184	1,379	1,598	1,785
	P	62,500	88,000	303,200	362,400	451,800	549,300
Seiners	N	376	407	1,221	1,395	1,517	1,724
	P	18,900	29,200	147,200	175,800	194,200	225,700
Other	N	2,244	2,422	5,898	7,151	7,757	8,878
	P	42,500	126,000	160,300	187,100	188,200	207,600
Nonpowered	N	33,679	41,174	46,292	45,912	47,752	48,056
	T	103,600	83,300	131,700	125,800	126,100	127,400

Source: FAO. Yearbook of Fishery Statistics, Vol. VI (1955–1956). Rome: 1957

N—number

P—horsepower

T—tonnage (GRT)

The reader will note that the gross tonnage was given only for nonpowered vessels, most of which operate in Soviet inland lakes, rivers, and seas.

In 1962, when FAO published its second (and most recent) statistical compendium of the world's fishing vessels, the Soviet Union no longer contributed its data in even the rudimentary format submitted in 1956.

It is not unlikely that some authority in the Soviet defense establishment—probably in the Soviet Navy—decided that such statistics are “sensitive” information and prevented their release.

Despite this unnecessary secrecy, which smacks of the old Stalinist methods, U.S. specialists are (and have always been) comparatively well-informed about the size and the composition of the Soviet fishing fleet.

It numbers over 80,000 fishing vessels; most of these are small coastal craft or inland-water boats used in the Caspian Sea, Lake Aral, Lake Baikal, on rivers and lakes, et cetera. Only about 4,400 fishing and fishery support vessels are equipped for, or capable of, open-sea, distant-water operations. These vessels, however, constitute the largest fishing fleet in the world, with an estimated total tonnage of over 6 million gross tons.

Table 2 is an attempt to compare official Soviet 1955 and 1940 data, given to FAO, with what is known about the Soviet fishing fleet composition in 1975.

The emphasis during the last two decades was on constructing powered fishing vessels, whose number is estimated to have increased almost sixfold since 1940 (from about 2,700 to about 18,000 units). The number of nonpowered vessels during a comparable timespan increased by less than 50 percent. The latter are small vessels, used mostly in inland waters and having on the average less than 3 gross tons each (see table 1 above).

Table 2. U.S.S.R. The number of powered and non-powered fishery vessels for selected years.

TYPE OF VESSEL/YEAR	1975	1955	1940
POWERED, TOTAL	(E) 18,000 ^{1/}	10,872	2,727
<u>Trawlers</u> ^{2/}			
Large Stern	760	-	-
Medium Side	1,810	1,498	107
Medium Stern	150	-	-
Seiner-trawler	40	-	-
Other	120	100	-
Total, trawlers	2,880	1,598	107
<u>Seiners</u>			
100 GRT or more	570	(E) 300	n.a.
less than 100 GRT	(E) 2,430	(E) 1,217	n.a.
Total, seiners	(E) 3,000	1,517	376
<u>Support Vessels</u>			
Fish carriers	380	(E) 100	-
Floating canneries	95	-	-
Motherships	5	-	-
Baseships	60	-	-
Cargo support	60	(E) 10	-
Repair ships	40	n.a.	-
Fuel tankers	75	10	-
Water carriers	35	(E) 10	-
Passenger transports	5	-	-
Fishery training	22	2	-
Research vessels	80 ^{4/}	(E) 13	10
Total, support	857	(E) 145	10
<u>Other</u> ^{3/}	(E) 11,168	(E) 7,549	(E) 2,234
<u>Whaling vessels</u>			
Motherships	5 ^{5/}	3	-
Catcher boats	90	(E) 60	-
Total, whaling	95	(E) 63	-
NON-POWERED, TOTAL	(E) 62,000	47,752	33,679
GRAND TOTAL	(E) 80,000	58,624	36,406

(E)-estimated

^{1/} Sovetskaia Torgovliia, July 12, 1975.^{2/} Includes only vessels having a capacity greater than 100 gross register tons.^{3/} Includes vessels having less than 100 gross register tons.^{4/} The figure 80 does not include those vessels which are engaged in exploratory fisheries research (*promrazvedka*), because they are owned by the respective Regional Fishery Administrations and not by the Fishery Research Institutes.^{5/} One of these, the *Iurii Dolgorukii*, was retired in late 1975 before the 1975/76 Antarctic whaling season began.Sources: FAO. *Yearbook of Fishery Statistics*, Vol. VI; Rome, 1957 (for 1955 and 1940 statistics)

Division of International Fisheries Analysis, Office of International Fisheries, NMFS, NOAA (for 1975 data).

Among the powered vessels, the emphasis during the last 20 years was on additions of trawlers and fishery support vessels. The first increased from about 1,600 units in 1955 to over 2,800 units by 1975, while the number of the various types of support vessels more than quadrupled.

In the "trawlers" category, special attention must be paid to large stern trawlers. They were all constructed during the last 20 years. These are large high seas vessels with a capacity of from 2,600–3,200 gross registered tons per vessel. The addition of 760 large stern trawlers during 1955–75 has added almost 2 million GRT to the total gross tonnage of the Soviet fishing fleet.

The total gross tonnage of about 4,400 Soviet high-seas fishing and fishery support vessels having over 100 GRT, is estimated at over 6 million GRT by the National Marine Fisheries Service, NOAA, U.S. Department of Commerce. The estimate is for the end of October 1975. Lloyd's Register of Shipping, which began to publish limited data on the Soviet fishing fleet in 1969 and improved them year after year, estimates that on July 1, 1974, a total of 4,043 such vessels had a gross tonnage of 5.6 million GRT. Lloyd's data are somewhat low. This may be due to the fact that quite a few Soviet fishery support vessels were constructed before Lloyd's began to collect its data, or because their construction was never announced. The National Marine Fisheries Service, which conducts an active surveillance program on foreign fishing off U.S. coasts, has often been able to add otherwise unreported new or old Soviet fishery vessels to its inventory rosters after such vessels were sighted and identified by its fishery enforcement patrols. Lloyd's, however, provides an interesting breakdown of the fleet by gross tonnage. (See table 3.) Smaller fishing vessels below 500 GRT, mostly side trawlers and seiners are by far the most numerous (2,025 units or 60 percent of all fishing vessels), but they account for only about 16 percent of the gross tonnage.

TABLE 3.—U.S.S.R. NUMBER AND GROSS TONNAGE OF FISHING AND FISHERY SUPPORT VESSELS, 1969 AND 1974.

Type of vessel and tonnage category	1969		1974		Average GRT	
	Number	GRT	Number	GRT	1969	1974
Fishing vessels:						
100-499 GRT -----	1,872	415,416	2,025	434,294	222	214
500-999 GRT -----	335	229,960	781	494,518	686	633
Over 1,000 GRT -----	397	1,138,551	710	1,876,130	2,868	2,642
Total -----	2,604	1,783,927	3,516	2,804,942	685	798
Support vessels -----	304	1,621,221	527	2,805,072	5,333	5,223
Grand total -----	2,908	3,405,148	4,043	5,610,014	1,171	1,388

Source: Lloyd's register of shipping statistical tables for 1974 and 1969.

On the other hand, the 710 fishing vessels over 1,000 gross register tons, all of them large stern factory and freezer trawlers, had a gross tonnage of almost 1.9 million in July 1974. This constituted almost 70 percent of the total, even though their number (710 units) was barely 20 percent of the total.

Another interesting fact, which is immediately observable from table 3, is the rapid growth of the larger fishing vessels. Their number almost doubled (from 397 in 1969 to 710 in July 1974 and 760 in October 1975), while the number of smaller fishing vessels below 500 GRT increased by less than 10 percent. In terms of gross tonnage, the ratio is even more disproportionate. This development corresponded perfectly to Soviet needs during the early 1970's: as their fisheries expanded to ever-more distant fishing grounds—as far as off the shores of South Africa, New Zealand or Mexico—the need for vessels with greater endurance, longer cruising range, greater horsepower and more amenable living and working quarters was escalated. And so did the construction of vessels which satisfied these requirements—the large stern trawlers. An additional incentive was the fact that a large stern trawler can catch 6–7 times the amount of fish which a small or medium side trawler can, but its crew is only about 3 times as large.

STERN FACTORY TRAWLERS—THE BACKBONE OF THE FISHING FLEET

During the last 20 years, the Soviets acquired about 760 large stern trawlers, either built in domestic shipyards, or purchased abroad. This addition, an average of 40 large stern trawlers per year, each of which can catch as much as 10,000 metric tons of fish in a good year, has greatly contributed to the continually increasing Soviet fisheries catch. Stern trawlers are a wideranging and important part of the Soviet fishing fleet; in 1975 they represented, in terms of tonnage, over 60 percent of all fishing vessels and almost one third of the entire fisheries fleet.

In the 1950's, Soviet interest in modernizing its fleet led to the acquisition of the blueprint of a stern factory trawler, a British innovation. First, the U.S.S.R. ordered 24 stern factory trawlers from the Kiel shipyards in West Germany. Once these were delivered, the Soviet Union began its own production (in the Nikolaev shipyards on the Black Sea and later in the Klajpeda shipyards on the Baltic). Poland and East Germany soon followed suit. All three countries are now engaged in mass production of stern factory trawlers. Most Polish- and East German-built trawlers have been delivered to the Soviet Union, enabling the Soviets to expand their high seas fisheries rapidly. In the Atlantic, the Soviet fishing fleet appeared off Canada (Newfoundland Banks) in 1956, off New England (Georges Bank) in 1961; as early as the next year, the Soviet vessels were sighted in the Gulf of Mexico. By 1966, Soviet fishermen were operating off Argentina.

Table 4 gives the current breakdown of the Soviet large stern trawlers by type, class, number and the country of construction.

The PUSHKIN-class of refrigerated stern factory trawlers (Soviet designation RRT) was delivered by Federal Republic of Germany shipyards in 1956–58. The original Soviet stern trawlers only had refrigerated holds (with a capacity of 800 metric tons). Their significance lies in the fact that they served as prototypes for similar vessels constructed in Soviet, and later in Polish and East German shipyards. The PUSHKIN-class refrigerated stern trawlers are gradually being phased out or converted into freezer trawlers.

Large stern trawlers with freezer facilities (BMRTs) were a later development, and added greatly to the distance a vessel could travel from its homeport.

TABLE 4.—U.S.S.R. FACTORY AND FREEZER STERN TRAWLERS OVER 100 GRT (DATA AS OF OCTOBER 1, 1975)

Type	Class	Number	Constructed in
Large Stern Factory Trawler (BMRT) -----	{MAIAKOVSKII LUCHEGORSK }	330	U.S.S.R.
Stern Freezer Trawler (RTM) -----	{TROPIK ATLANTIK }	240	E. Germany
Refrigerated Stern Trawler (RRT) -----	{KOSMOS PUSHKIN LESKOV }	90	{Poland W. Germany Poland
Factory Processing Trawler (PRT) -----	{GRUMANT SKRYPLEV ALTAI }	60	{Denmark Denmark U.S.S.R.
Seal-Hunting and Fishing Trawler -----	ZMS	20	U.S.S.R.
Seal-Hunting and Fishing Trawler -----	ZVEROBOI	20	Poland
Total -----		760	

Factory processing trawlers (PRTs) are a new type of vessel used for fishing and processing. Many of these processing trawlers have been built for the Soviet Union in Denmark.

Certain classes of stern freezer trawlers (*Tropiks*, *Atlantiks*) are built exclusively in East Germany. To date, there are over 240 of these vessels, designated RTM, in the Soviet fishing fleet. The 20 ZMS-class vessels are equipped for seal-hunting as well as fishing. These trawlers have complete factory processing facilities onboard. The *Zveroboi*-class is also a dual-purpose sealer and fishing trawler. *Zveroboi* vessels are equipped to produce seal oil, skins and meat, along with fishmeal and frozen fish. The *Zveroboi* trawlers were built in Poland for the Soviet Far Eastern Fishing Fleet. First ordered in 1971, there are now 19 in operation.

In mid-1975, the Soviet fishermen were trial-testing prototypes of two new classes of large stern freezer trawlers: the *Meridian*, and the *Gorizont*. The trials took place off Africa and if they were to be successful, mass-production of these two classes would begin in Soviet shipyards.

PORTS OF CALL FOR THE FISHING FLEETS

A large fishing fleet, operating far from its homeport, requires special facilities for transshipment of the catch, refueling, resupplying and for vessel maintenance and repairs. Catch transshipment is complicated, if not impossible, on the high seas due to heavy wave action which makes it difficult for vessels to anchor side by side. At the same time, it is much too expensive for a fishing vessel to move to and from distant fishing grounds to unload its catch and refuel. The countries with fishing fleets that fish off distant foreign coasts, therefore, often seek the use of nearby port facilities. The Soviet

Union in particular has established bunkering and transshipment points in almost every area fished by Soviet vessels. The most important of these include Singapore (servicing the Soviet fishery fleets operating in the Indian and Pacific Oceans); Havana, Cuba (Atlantic Ocean); and the Canary Island (Atlantic Ocean). Other ports such as Port Louis, Mauritius (Indian Ocean) and St. Pierre and Miquelon, French possessions off the Atlantic coast of Canada, also have been utilized this way.

The Soviets sometimes acquire port facilities by establishing joint ventures with the other country involved. For example, under an agreement signed in Singapore on June 19, 1975, a new seafood processing firm called Marissco, Ltd. is to be formed. SOVRYBFLOT, the foreign trading branch of the Soviet Ministry of Fisheries, and Straits Fisheries, Ltd., a company that is partly owned by the Development Bank of Singapore, will own the company jointly on an equal share (50-50) basis. Marissco, Ltd. will not only process, but also package and sell on the international market various species of fish, lobsters, squid, cuttlefish, prawns, and byproducts, including fishmeal. A large cold-storage plant will be built in the Jurong port complex to provide processing facilities and warehouse space for fishery catches unloaded from Soviet trawlers. Singapore's location halfway between the Indian and Pacific Oceans is ideal for the Soviet fishing fleet, which operates extensively in both areas.

A Soviet joint venture with Spain in the Canary Islands has been functioning successfully since 1969. In that year, the two countries signed an agreement creating "SOVISPAN," a company whose purpose is to develop the Canary Islands as a supply, crew rotation, and transshipment base for the Soviet fishing fleet. New port installations, which service Soviet vessels operating in the central Atlantic, have been built at Las Palmas and Santa Cruz de Tenerife. Fishery products not used for Soviet domestic consumption (octopus, squid, etc.) are exported directly from Santa Cruz.

The establishment of a Soviet fisheries base in Cuba involved a considerably greater degree of cooperation than did the agreements with Singapore and Spain. The Soviet Ministry of Fisheries, no less than the Ministries of Defense and Foreign Affairs, foresaw the excellent possibilities in establishing a base for distant-water fishing fleets on that strategically-located island. The U.S.S.R. desired Cuba as a fishing base, as much as the Cuban Government desired a rapid development of its marine fisheries. If the U.S.S.R. would build the Cubans a modern fishing port, then the Cubans would permit the Soviets to use this new port as a base for their fishery operations in the central and southern Atlantic.

The agreement on the construction of the fishing harbor was signed in Havana on September 25, 1962, by Soviet Minister of Fisheries Aleksandr Ishkov and Cuban Premier Fidel Castro. Under the terms of the agreement, the Soviet Union obligated itself to construct, during 1962-65, an entire port complex with fish processing, ship repair, and communication facilities capable of servicing and operationally supporting a large fleet. The Soviets promised to provide the complete blueprint for the construction of the port and its facilities; provide equipment and construction materials not available in Cuba; and to supply experts, engineers, construction foremen, and other personnel

needed to speed up the work and carry it out professionally. The Cubans obligated themselves to supply the labor force needed for the construction and to provide such materials and equipment as were available in Cuba. The Soviets gave the Cuban Government a loan covering the entire construction cost, both in pesos and in rubles. The Cubans were to repay the loan by servicing Soviet high seas fishing vessels in the port of Havana for a period of 10 years from the date of the termination of construction.

Soon after the agreement was signed in Havana, the Cuban missile crisis erupted and delayed somewhat the beginning of the construction. In February 1963, the Cuban Government officially announced the beginning of the construction of Havana Fishing Port, although the excavation had already begun in December 1962 as soon as the American naval blockade was lifted. After 3½ years of construction, the Havana Fishing Port was officially opened on July 26, 1966, the seventh anniversary of Castro's rise to power. The Soviet fishing fleet began full use of the port as their supply and transshipping point in September 1966. The total cost of the project was 37 million Cuban pesos, a 300 percent overrun of the original cost estimate of 12 million pesos.

In order to pay back their loan, the Cubans must continue servicing Soviet fishing vessels in Havana until July 26, 1976. The original agreement provided, however, for an extension if the entire loan is not repaid by 1976 or (in case the loan were paid) if both Cuba and the U.S.S.R. agreed to do so. In view of the unfavorable Cuban balance of trade it must be expected that the Cubans will continue servicing the Soviet fleet as long as Castro remains in power and perhaps even afterward.

Soviet efforts to establish a transshipment and supply base on the strategic island of Mauritius in the Indian Ocean have met with varying degrees of success. In 1970, a fisheries cooperation agreement was signed by Mauritian and Soviet representatives which provided for crew exchanges and aid to Mauritius for the development of its fishing industry. However, only 15 Soviet fishing vessels each year would be able to refuel at Port Louis, a small number in comparison with Las Palmas in the Canary Islands where 360 Soviet vessels called in 1968 alone. The Mauritian Government was under some pressure from several European and African nations to limit the extent of fisheries cooperation with the U.S.S.R. For example, the British and South African Governments expressed concern at the signing of the agreement, which was concluded suddenly and without the prior knowledge of either. Both governments seemed to feel that the Soviet Union had gained a vital foothold in the Indian Ocean, although the Prime Minister of Mauritius assured them that the Soviets would not be authorized to establish a naval base on the island. In 1971, the Mauritian Government, pressured by the British, was forced to buy back at a loss a fueling station which it had sold to the Grand Port Ocean Terminal Company, a firm under Soviet control.¹⁷ Although fisheries aid to Mauritius continues in the form of fishery development surveys and the training of fishermen, no recent moves have been made to increase the number of vessels permitted to supply in Port Louis.

¹⁷ *Le Mauricien* (in French), December 4, 1971.

St. Pierre and Miquelon, French islands off the Newfoundland coast of Canada, have been developing their port facilities in recent years in order to serve as a transshipment base for European fishing fleets operating in the Northwest Atlantic. New wharves have been added, as well as a cold storage plant equipped to freeze and store all kinds of fishery products. As an inducement to foreign fleets, the plant has been granted "duty free" status which means that no duty will be charged on goods brought in for freezing and/or storage and later shipped out of the island. The facilities at St. Pierre, however, offer comparatively little competition to the well-developed Canadian ports of St. John's (Newfoundland) and Halifax. The size of the harbor at St. Pierre limits the number of foreign vessels that can be serviced there. St. Pierre and Miquelon, however, did serve as nearby alternative ports for Soviet trawlers when the Canadian Government closed its Atlantic ports in August, 1975. This port closure did not last long. By late September 1975, Soviet and Canadian fishery delegations had reached an agreement and the ports were reopened. At best, St. Pierre and Miquelon can serve as an auxiliary to, but not replacement for, the traditional fishing ports of the Canadian Atlantic coast.

While a specialized fishing base, like the ones in Havana or on the Spanish Canaries, is of exceptional significance for the smooth operations of farflung Soviet fleets, it must not be forgotten that the Soviet fishing and fishery support vessels can, and do, call in almost any port in the world to obtain water, fuel, and other supplies.

The only consistent exception in allowing unlimited port calls to Soviet fishery vessels is the United States. When giant armadas¹⁸ of these vessels first appeared off U.S. coasts in the early 1960's to fish the rich resources of its Continental Shelf, the U.S. Government maintained a "no-port-calls" policy (except, of course, in emergencies or for humanitarian reasons). By the late 1960's, the United States had negotiated a bilateral agreement on Soviet fishing in the Mid-Atlantic Bight (from Rhode Island to Cape Hatteras) and opened four of its Atlantic ports to a few Soviet vessels. This was in exchange for Soviet acceptance of certain limitations on their fishing which were deemed essential for the conservation of fishery resources or for the protection of U.S. coastal fishermen. Today, the Soviet vessels may call at the ports of Boston, New York, Philadelphia, and Baltimore, but only in severely limited numbers (4 a month).

INVESTMENTS IN THE FISHERY FLEET

During the last 30 years, the Soviet Union has invested an estimated 8.4 billion rubles¹⁹ in new additions to its fishing and support fleets. Prior to World War II, such investments were minimal in accordance with Stalin's view of the U.S.S.R. as a land power and his policy of developing heavy industry rather than the output of consumer products.

¹⁸ This is no exaggeration. In 1961, when the Soviets first began fishing off New England, a few dozen vessels participated. By the next summer, 300 Soviet vessels fished in the same area. In April 1966, a total of 118 Soviet vessels appeared on the narrow Continental Shelf off Washington state without any warning within a period of a few weeks, practically crowding smaller U.S. vessels out of their traditional fishing grounds. As a result, the U.S. Congress extended U.S. fishery limits an additional 9 miles to 12 miles, a step which greatly shocked the Soviet Fisheries Ministry.

¹⁹ Or about U.S. \$11.2 billion at current official exchange rate of 1 ruble equal U.S. \$1.32.

This attitude of neglect changed radically in the postwar period. During the reconstruction years, large outlays of rubles were made for new fishing vessels as well as for the repair of damaged ones. Budgetary allocations during the first post World War II plan (1946-50) were 7 times greater than during the entire prewar and wartime period from 1928-45 (table 5).

TABLE 5.—U.S.S.R. CAPITAL INVESTMENTS IN THE FISHING AND FISHERY SUPPORT FLEET: BY PLANNING PERIODS (1928-1975).
[In million rubles]

Planning period	Capital investment by planning period	Increase over prior planning period	Percentage of increase over prior planning period
1928-45	31.0	N.A.	N.A.
1946-50	218.0	187.0	603.0
1951-55	386.0	168.0	77.0
1956-60	933.4	547.4	141.8
1961-65	1,346.3	412.9	44.2
1966-70	2,484.0	1,137.7	84.5
1971-75	¹ 3,000.0	¹ 516.0	¹ 20.8
Total	8,398.7 (c)		

¹ Estimate.

Soviet capital investments in the fisheries fleet grew rapidly until, during the 1966-70 5 Year Plan, they amounted to almost 2.5 billion rubles, or U.S. \$2.8 billion (calculated at the 1970 exchange rate of \$1.11 to 1 ruble). The annual sum of U.S. \$560 million, invested in the construction of new fishery vessels during that planning period is by far the largest amount any government or a group of private companies, or both combined, have allocated for such a purpose. Data on capital investments earmarked for the fishing fleets in the free-enterprise countries are difficult to obtain, but they are estimated to be far below the sums the Soviets have been spending during the last decade.

Capital investments in the fisheries fleet have recently been growing at a rate almost double that of other Soviet capital investments. During the 1966-70 plan, for example, the Soviets invested a total of 501 billion rubles in the economy, or 42 percent more than during the previous 5-Year Plan 1961-65. The investments in the fisheries fleet, however, were 85 percent greater than during the 1961-65 plan.²⁰

The investment estimates for the current 5 Year Plan were obtained by calculating that about 70 percent of total fishery investments, estimated at over 4 billion rubles, will be allocated for the modernization and expansion of the fisheries fleet. This percentage may be somewhat high in view of the recent trend to invest more in fish-processing plants and machinery, but on the other hand, it is hard to imagine that hundreds of large vessels, added to the Soviet fishery fleet during the last 5 years could cost much less than 3 billion rubles.

²⁰ Sysoev, N. P. *Ekonomika rybnoi promyshlennosti*, Moscow, 1972.

PRODUCTIVITY OF SOVIET FISHERMEN

Because of a lack of reliable Soviet statistical data, it is extremely difficult to determine the true productivity of Soviet fishermen. This difficulty is compounded when an attempt is made to compare that productivity with those of fishermen in other countries.

However, one general measure can be applied. Statistics on the gross tonnage of the world's fishing fleets are available, as are total catch data. We have therefore compiled statistics for the five countries which have the largest fishing fleets and calculated their fishermen's productivity on that basis. The results are given in table 4.

Table 4.--High-seas fishery fleets of selected countries, number of vessels, gross tonnage and catch per gross ton, 1973.

COUNTRY	Number of Vessels	Gross Tonnage (in GRT)	Percent of Total World Tonnage	Fisheries Catch (in million(mt) ^{5/}	Catch per GRT (in mt)
U.S.S.R.	4,700	6,500,000 ^{1/}	56.2	8.6 ^{6/}	1.32
JAPAN	3,099	1,510,985 ^{2/}	13.0	10.7 ^{6/}	7.08
SPAIN	1,953	510,491 ^{3/}	4.4	1.6	3.13
U.S.	1,577	357,620 ^{4/}	3.1	2.7	7.55
NORWAY	604	202,745 ^{4/}	1.8	3.0	14.80
OTHER	6,679	2,491,113 ^{4/}	21.5	28.3 ^{7/}	11.36
TOTAL	18,412	11,572,954	100.0	54.9 ^{8/}	4.74

NOTE: Only vessels over 100 gross registered tons are included.
Both fishing and fishery support vessels are included.
"Other" is residual.

^{1/} Division of International Fisheries Analysis, Office of International Fisheries, NMFS, NOAA. Data are for 1973.

^{2/} Fisheries Statistics of Japan, 1973, Fisheries Agency, Ministry of Agriculture and Forestry, Tokyo, 1975.

^{3/} Subsecretaría de la Marina Mercante. Anuario de pesca marítima, 1973. (p. IX). Lloyd's statistics report a gross tonnage of 509,600 tons as of July 1, 1974, but gave the number of vessels as 1,619 units.

^{4/} Lloyd's Register of Shipping Statistical Tables, 1974. (Data are for July 1, 1974). The figure is a residual.

^{5/} FAO Yearbook of Fishery Statistics, 1973. Rome, 1974.

^{6/} Does not include the catch of marine mammals for both USSR and Japan, nor the harvest of marine plants for the U.S.S.R.

^{7/} Residual.

^{8/} Includes only countries having high-seas fishery fleets and listed in Lloyd's Register of Shipping Statistical Tables, 1974.

The data for both Japan and the Soviet Union are somewhat misrepresentative because their catch of marine mammals (whales, seals, et cetera) is not included in their 1973 catch data. The Soviet Union's total fisheries catch in 1973 was 9,005,000 metric tons (mt), but that of Japan is not known.²¹ The number of Soviet vessels is somewhat larger than in 1975 (when the fleet was estimated at about 4,400 vessels; see table 2 in the chapter "Soviet fisheries fleet; a statistical review") because in 1973 the Soviets had not yet retired several hundred older fishing vessels.

Despite such deficiencies in the statistics, it is immediately evident that the Soviet fisheries are the least productive: only 1.3 mt were caught per gross registered ton (GRT). It is clear that long trips away from Soviet shores and the large number of support vessels are costing Soviet fishermen greatly in productivity. More than one-half of the Soviet fishery tonnage consists of support vessels. In contrast, less than 14 percent of the gross tonnage of the Japanese high seas fleet is composed of support vessels.

Spain, which also recently expanded its distant-water fleet and deploys more and more large vessels, is the second lowest in productivity per GRT, but still almost twice as productive as the U.S.S.R.

Japan's catch per GRT of 7.1 metric tons is surprisingly high. This country operates its vessels in a manner not too different from that of the Soviet Union. Both send large flotillas of fishing vessels, accompanied by motherships, to distant fishing grounds, and both operate large stern factory trawlers. There are, however, several differences:

1. Japan's fishing industry is more willing to spend abundant foreign currencies for services in foreign ports and needs thus far fewer tankers, water carriers, repair vessels and other support vessels. (Lloyd's Register of Shipping estimates Japan's support fleet at 71 vessels with 217,000 GRT. The Soviet fishery fleet is estimated by Lloyd's at 527 vessels with 2.8 million GRT.) It is easier for the Soviets to pay more for support operations in available and expendable rubles than to pay for foreign-port services in hard-to-get foreign currencies.

2. Japan still maintains traditional coastal fisheries close to its shores. Thousands of small vessels of less than 100 GRT—and therefore excluded from table 4—bring in fish which are included in the 1973 catch figure. Soviet coastal fisheries, in contrast, are becoming less and less important for two reasons: The resources off U.S.S.R. shores have been overfished and young Soviet fishermen prefer to enter high seas fishing where earnings are greater.

3. There will be those who will maintain that the Japanese fishermen are more successful because they operate under a commercial system intolerant of inefficiency, while the Soviets operate under a state-directed, socialist system. We would not quarrel with that opinion.

Whatever other reasons could be added, the conclusion that Japanese fishermen are exceedingly more productive than those of the Soviet Union is inescapable.

U.S. fishermen are also highly productive. Fishing from their home ports at distances which do not require many support vessels, they

²¹ Japan does not give its whale catches in terms of metric tons, nor does it give a total fisheries catch figure like the one given by the Soviets from which the whale catches expressed in metric tons can be inferred. What the Japanese do provide is the total fish and shellfish catch as well as the harvest of marine plants.

bring in 7.5 tons of fish per each gross ton of vessels they privately own. With only 3 percent of the world's gross tonnage, they harvest almost 5 percent of the catch caught by the world's high-seas fleets (table 4). Even more productive are the Norwegian fishermen, who operate in circumstances similar to those of U.S. fishermen, but who have more modern and more efficient vessels and gear.

Hopefully, more complete data will be published by fishery nations in the future so that more definitive productivity analyses can be made.

EDUCATION AND TRAINING OF SOVIET FISHERMEN

The rapid expansion of the Soviet fisheries fleet and the introduction of modern processing technology demand a highly-skilled labor force and high-grade technical specialists. To tap the tight Soviet labor markets, the Ministry of Fisheries transformed what used to be an unskilled trade into a Government recognized profession with a well-developed system of secondary schools and universities. Young sons of fishermen (only males are allowed to enter Soviet secondary fishing schools) can now plan an attractive career leading to the highest positions in the Soviet establishment.

There is no lack of candidates for Soviet fishery schools, in contrast to many Western countries where it is difficult for fishing companies to lure young people into fishery schools, provided they exist.

The enthusiasm of young Soviets to enter the fishermen's profession has several explanations:

1. Salaries paid to Soviet fishermen are often twice—and sometimes three times—as high as those paid to ordinary Soviet workers. The deckhands on a productive Soviet factory freezer trawler earn as much as U.S. \$600 a month and captains make over \$1,000. The average Soviet worker's salary is below \$200.

2. A well-organized system of publicity about developments in Soviet fisheries begins as early as primary school where teachers often organize special field trips or education programs with an emphasis on the fishing industry or fisheries biology.

3. Education in Soviet fisheries schools, as in all Soviet schools is free. Tuition is paid by the Government. In addition, most students are given not only books and other school necessities, but also clothing (uniforms) and a small monthly allowance.

4. The sense of adventure experienced by a Soviet fisherman when he visits a foreign port, which otherwise he would never see, should not be underestimated. The ordinary Soviet citizen does not easily get a passport for travel to foreign countries. Thus, the demand for fishery jobs, in the Soviet Union, especially those jobs which include fishing off foreign shores, has consistently exceeded the available positions.

5. Modern Soviet fishery vessels are not only seaworthy, but are also comfortable, especially when compared with small medium trawlers aboard which Soviet fishermen ventured onto the high-seas thousands of miles from their native shores during the 1950's and early 1960's. Large stern factory trawlers now have separate fishermen's cabins which are comfortable, well-lit, and livable. Vessels fishing in tropical waters are often air-conditioned. The officers' quarters,

especially on larger motherships, are almost luxurious. Each vessel has cooks and waiters or waitresses and although the fishermen's work is hard, vacations are long and well-paid. Aboard each mothership there is a hospital with a surgeon and a dentist in case of emergencies.

FISHERY SCHOOLS

Since the formation of the Soviet State in 1917, a complex educational system for the training of fishery specialists has evolved.

In Tsarist Russia, there was only one such school—the Fisheries Department of the Petrovsk Agricultural Academy with less than 50 students. By comparison, over 60,000 students in more than 30 schools were studying to be fishermen in 1975.

Soviet writers use the above mentioned statistical comparison to document the great improvements over Tsarist Russia. In reality, however, the fisheries in most countries prior to 1917 were small local industries, limited to coastal waters and a primitive—though often effective—technology. In such fisheries, where fathers trained their sons in the arts of the trade, large-scale fisheries training was neither necessary nor practical. In fact, pre-revolutionary Russia was one of the few countries that had a fisheries school at that time.

With the buildup of a large distant-water fleet, a need for qualified fishery experts has developed in the Soviet Union. To operate the technologically highly-advanced stern freezer trawlers, or a modern automated fish-processing plant, well-trained personnel are required.

To meet this demand, dozens of fishery training schools were established as part of broad educational programs developed after World War II and designed to combine technical training with general education on the secondary and higher levels.

Types of Schools

Fisheries education in the U.S.S.R. fits into the general Soviet educational scheme as one of the technical fields in which a student may specialize at various points during his education. There are three different levels of fishery schools in the U.S.S.R. which may be further divided into two different types:

Level of schools (number of schools)	Type of schools (number of schools)
I. Higher Institutes (6) -----	<ul style="list-style-type: none"> 1. Higher Technical Fisheries Institute (3). (Vysshee Texnicheskoe-Uchebnoe Zavedenie). 2. Higher Engineering Fisheries Institute (2). (Vysshee Inzhenemoe Morskoe Uchilishche). 3. Institute for the Improvement of Qualifications of Fisheries Command Personnel (1).
II. Secondary Schools (25) -----	<ul style="list-style-type: none"> 4. Secondary Fishery Schools (15). (Morekhodnoe Uchilishche). 5. Secondary Coastal Fishery Schools (10). (Tekhnikum).
III. Trade Schools (7) -----	<ul style="list-style-type: none"> 6. Fisheries Trade School (6). (Morekhodnaia Shkola). 7. Kothkoz Training School (1).

In addition to the above, there are also departments in many Soviet universities and scientific research institutes where fishery related subjects are taught. The All-Union Scientific Research Institute for Fisheries and Oceanography (VNIRO) in Moscow supervises fishery studies on a post-graduate, doctoral level.

The first type of fishery school a student may enter is the Fishery Trade School (Group III above), available after graduation from the eighth grade. Courses usually last for 1-2 years, but in some trades, 3 years. The courses taught, the length of training, and the admission requirements, are decided upon by the State Committee for Vocational Training. Graduates become skilled workers in the Soviet fishing industry. However, they do not earn a secondary school diploma and thus remain low-paid employees.

Next are the secondary fishery schools (Group II above). These are the fishing industry's specialized secondary schools, the mainstay of Soviet fisheries education. In general, these school are of two types:

(1) the Secondary Fishery School which trains high-seas captains, navigators, and other officers, and

(2) the Secondary Coastal Fishery School which trains students for the same positions, but only for coastal and inland fisheries. The student may enter after having completed either an 8th- or a 10th-grade education. In either case, he graduates from the school with a secondary diploma, as well as with technical expertise.

The third type of fisheries educational institutions are the higher institutes (Group I above). These institutes are the equivalent of U.S. universities and colleges, but they specialize in matters related to fisheries. Applicants must have completed secondary school to gain acceptance. Only a few students advance to this level, the admissions procedure is extremely competitive. Institute graduates become the economists, gear designers, planners, and managers of the fishing industry.

The Higher Technical Institutes differ from the Higher Engineering Institutes mainly with regard to curriculum emphasis. The engineering colleges offer general engineering specialties such as vessel mechanics and electrical engineering. The technical institutes, however, offer specialties with emphasis on the fishing industry, such as commercial fishing or technology of fish products.

Furthermore, full-time students at the Higher Engineering Colleges live in dormitories and are provided with uniforms, meals, and a monthly stipend. Students at the Technical Institutes, on the other hand, do not as a rule receive such "boarding school" benefits unless they are graduate students. They do, however, receive a stipend sufficient for living expenses which is linked to their academic achievement. High achievers receive more, average students less. As with the Soviet educational system in general, all tuition is paid by the State.

The Schools for Improving the Qualifications of Fisheries Personnel represent the third category of higher fishery educational institutions. These "schools" are actually education programs devoted to upgrading and updating the skills of the upper echelon among fishery personnel: medium-level technicians, captains, mates, and other high-level engineering personnel. Courses are usually given at enterprise training

centers, specialized secondary schools, or higher schools. One higher fisheries school which is entirely devoted to upgrading skills is the Kaliningrad Institute for the Improvement of Qualifications (*Institut povysheniia kvalifikatsii*). This school is only for the training of top-level administrative and engineering personnel. Other secondary and higher schools may have a department devoted to such an "improvement" program among their regular courses. Enterprise courses for improving qualifications are available to medium-level technical personnel as well as to high-level managers and engineers.

The geographic distribution of Soviet fishery schools is shown in figure 1 and in the list below.

Fishery Schools in the Soviet UnionI. HIGHER FISHERY INSTITUTES

- A. Higher Technical Fishery Institutes
(Tekhnicheskie instituty rybnoi promyshlennosti i khoziaistva)
1. Kaliningrad (Branch in Riga)
 2. Astrakhan
 3. Vladivostok (Branch in Petropavlovsk-Kamchatskii)
- B. Higher Engineering Fishery Institutes
(Vysshie inzhenernye morskii uchilishcha)
1. Murmansk
 2. Kaliningrad
- C. Other Higher Institutes
1. Kaliningrad (Institute for Improving the Qualifications) (Institute povysheniia kvalifikatsii) (Branch in Dmitrov, Moscow Oblast')

II. SECONDARY FISHERY SCHOOLS

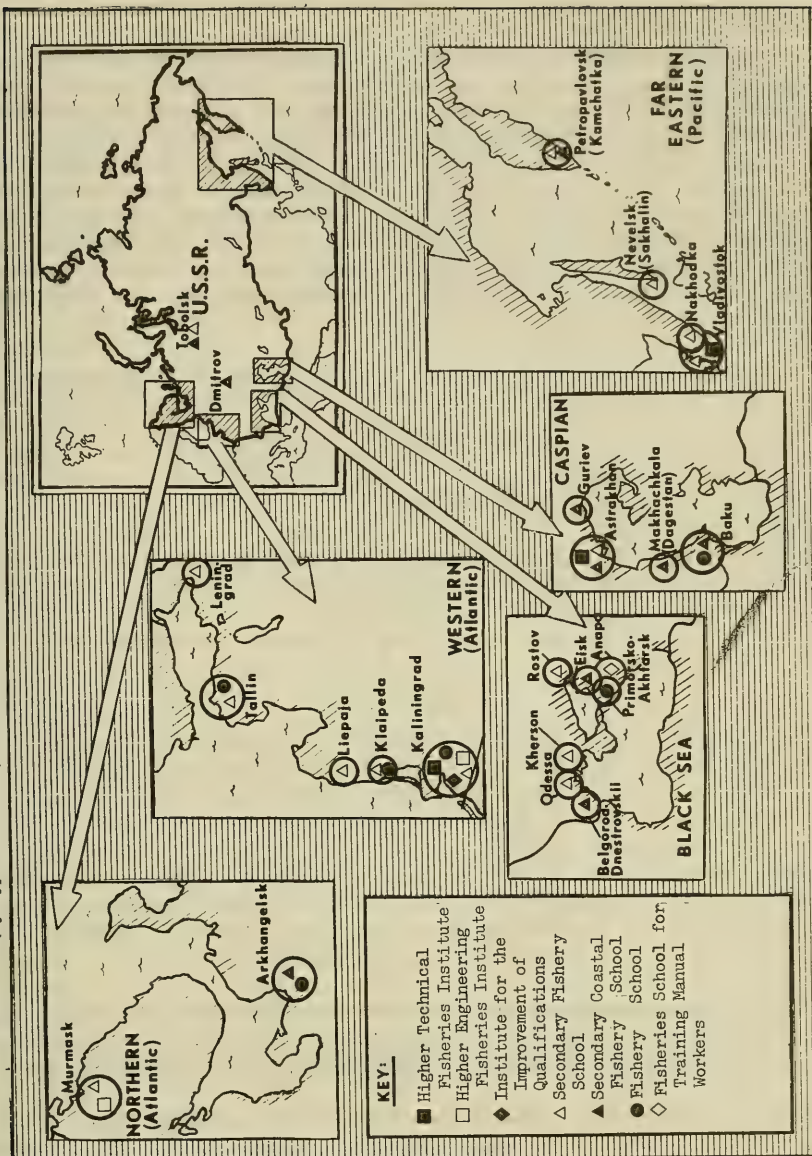
- A. Secondary Fishery Schools (Srednie morekhodnye uchilishcha)
- | | |
|----------------|---------------------------------|
| 1. Murmansk | 9. Rostov-na-Donu |
| 2. Kaliningrad | 10. Astrakhan (Kaspiskoe) |
| 3. Leningrad | 11. Nevelsk (Sakhalinskoe) |
| 4. Liepaja | 12. Nakhodka (Dal'nevostochnoe) |
| 5. Tallin | 13. Petropavlovsk-Kamchatskii |
| 6. Klajpeda | 14. Vladivostok |
| 7. Odessa | 15. Tobolsk |
| 8. Kherson | |
- B. Secondary Coastal Fishery Schools (Rybopromyshlennye tekhnikumy)
- | | |
|--------------------------|---------------------------------|
| 1. Astrakhan | 6. Dagestan (Makhachkala) (F) |
| 2. Arkhangelsk | 7. Baku |
| 3. Eisk (Krasnodar) | 8. Dmitrov (Moscow oblast') (F) |
| 4. Belgorod-Dnestrovskii | 9. Petropavlovsk-Kamchatskii |
| 5. Guriev | 10. Tobolsk (F) |

III. PRE-SECONDARY FISHERY SCHOOLS

- A. Fishery Trade Schools (Morekhodnye shkoly)
- | | |
|----------------|-----------------------|
| 1. Arkhangelsk | 4. Primorsko-Akhtarsk |
| 2. Kaliningrad | 5. Baku |
| 3. Tallin | 6. Klajpeda |
- B. Training School for Leading Workers of Fishery Kolkhozes
(Shkola po podgotovke rukovodiashchikh rabotnikov rybolovetskikh kolkhozov)
1. Anapa

(F) - Secondary schools specializing in training of inland fishermen.

Fig. 1. Soviet Fishery Educational and Training Institutions as of 1974,
(by type of school, location, and administrative control).

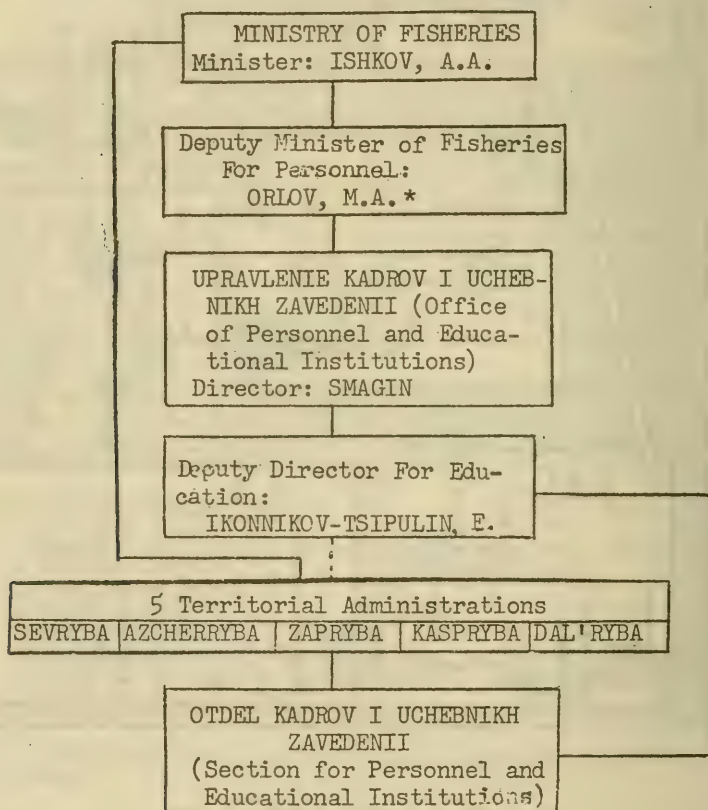


Administrative Organization

The Soviet fisheries education institutes and fisheries training vessels are administered centrally by the Ministry of Fisheries of the U.S.S.R. in Moscow. The overall responsibility for all policies of the Ministry is in the hands of the Soviet Fisheries Minister, Mr. A. A. Ishkov.

Under Ishkov there are 6 Deputy Ministers of Fisheries, each responsible for several specialized fields of the Ministry's activity. One of them, the Deputy Minister for Personnel, also handles the overall administration of the Soviet fishery schools and fishery training vessels. At the present time, Mr. Mikhail Anatolevich Orlov²² occupies this position. He was appointed in 1971, replacing Mr. Eliseev who retired.

Fisheries Education in the Soviet Ministry of Fisheries



²² Retired in late 1975. On April 13, 1976 he was replaced by Mr. Nikolai P. Kudriavtsev who was formerly the Second Secretary of the Arkhangelsk Regional Committee of the Soviet Communist Party.

To facilitate the day-to-day administration of Soviet fishery educational policies, an Office of Personnel and Educational Institutions under Director Smagin has been formed.

Routine attention to the problems of running the Soviet fishery educational institutions, of establishing new policies, and of executing the policies already set, is the responsibility of Mr. Evgenii Ikonnikov-Tsipulin who is Mr. Smagin's Deputy.

Mr. Ikonnikov has been the Deputy Director of the Office of Personnel and Educational Institutions at least since 1969, but probably for much longer. Little is known about the day-to-day functioning of his office, nor are the names of his assistants known. He is nevertheless the best informed Soviet official on fishery education and training and it is mainly due to his unceasing and enlightened efforts that so much progress has been made.

From the central Office of Personnel and Educational Institutions in Moscow, the line of direct authority goes to the sections of Personnel and Educational Institutions within each of the 5 territorial administrations of the Soviet Ministry of Fisheries. The Soviet Union has territorial administrations in Murmansk (Sevryba), Riga (Zapryba), Kerch (Azcheryba), Astrakhan (Kaspyba), and Vladivostok (Dalryba). Each of these has under its immediate authority a section for Personnel and Educational Institutions with the same daily responsibilities for their territory that Mr. Ikonnikov in Moscow has for the central apparatus.

Statistical Review

a. Students

The number of students in Soviet secondary fishery schools and higher institutes expanded continuously after World War II from a few thousand in the mid-1940's to about 56,000 in 1966. To provide for this increasing number of students, at least 15 fishery schools were established during those years. The number of students has increased less rapidly since then to about 61,000 in 1973²³ and has remained constant through 1975. About 40 percent of all students (an estimated 24,400) attend the 6 higher fishery institutes, while 60 percent (an estimated 36,600) are students in the 25 secondary fishery schools.

Approximately one-half, or about 30,000 Soviet fishery students, are taking correspondence courses; they work fulltime in the fishing industry and only travel to schools for examinations and laboratory work.²⁴

Each higher institute has between 2,000 and 5,000 students, while the secondary fishery school students range from a few hundred to over 4,000 per school.

At the present time, about 10,000 students graduate each year from Soviet secondary and higher fishery schools.²⁵ As a result of this continual influx of skilled employees, the number of trained specialists working in the fishing industry has increased steadily. In 1965, the Soviet fishing industry employed about 47,000 graduates of higher and secondary fishery schools, and by 1968, this figure had grown

²³ Rybnoe Khoziaistvo, May 1973.

²⁴ Vodnii Transport, February 5, 1970.

²⁵ Rybnoe Khoziaistvo, April 1971 and May 1973.

to 70,000.²⁵ About 90,000 graduates were employed in the fishing industry in 1971²⁵ and, by 1975, their number has probably grown to 130,000 persons.

Of the 90,000 graduates of secondary and higher fisheries schools in 1971, slightly fewer than 50 percent (42,000) were employed aboard vessels of the fishing fleet.²⁵ (This compares to 30,000 out of 70,000 graduates in 1968.²⁶) They serve as captains, mechanics, and navigators of the fleet.

About 50 percent of the specialists with a higher education, and 70 percent of those with a secondary education, work in the Northern, Far Eastern, and Western Fisheries Administrations. Over 90 percent of all captains of large Soviet fishing and fishery support vessels are either secondary or higher school graduates. The Soviets, however, admit that there are still many positions requiring high technical skills which are held by persons without formal fisheries education.

b. Professors.

There is no figure available on the total number of professors in Soviet secondary and higher fisheries schools, but it can be estimated.

In the Western Fisheries Administration (Zapryba), there are 220 full-time professors for approximately 4,000 students in the 5 secondary fishery schools.²⁷ This is a faculty-student ratio of about 19:1. The "tekhnikum" in Astrakhan employs 95 full-time professors for about 2,500 students. This represents a faculty-student ratio of 26:1.

Based on the above data and the fact that class sizes vary from 20 to 30 students, an estimated faculty-student ratio of 20-25:1 is probably realistic. This would mean that about 2,500-3,000 full-time faculty members teach in Soviet fishery schools and that as many as 7,000 assistants are part-time instructors.

It is interesting to note that of the 220 professors in Zapryba, 110 belong to the Communist Party.²⁷ This is an unusually high percentage²⁸ and, if it holds true in the other Administrations, it would indicate that the Fisheries Ministry wants strong party leanings instilled in the future officers of its high seas fishing fleet. With the large investments in fishing vessels, and the fact that they are far away, off foreign shores, for long periods of time, this is not surprising.

c. Budget.

Very little is known about the budgetary allocations for fisheries education in the U.S.S.R. One visitor reported that the Fisheries Ministry budgeted about 22 million rubles for its fishery schools in 1966.

The budget of the Nakhodka Secondary Fishery School was over 2 million rubles in 1973. Administrators of the school estimated that the cost of a year of education for one full-time secondary fishery school student was about 1,000 rubles. The Astrakhan Secondary Coastal Fishery School had about 1,000 full-time students and an annual budget of over 8 million rubles in mid-1966. This would give an expenditure of about 800 rubles per student per year.

²⁵ Rybnoe Khoziaistvo, April 1971 and May 1973.

²⁶ Rybnoe Khoziaistvo, January 1968, p. 86.

²⁷ Rybnoe Khoziaistvo, June 1974.

²⁸ In the entire U.S.S.R. there were 14.8 million Communist Party members in 1973, or 6 percent of the population.

The costs of educating a student in the Soviet higher fisheries institutes appear to vary more widely. With 2,500 students (1,000 full-time), the Murmansk Higher Marine Engineering Institute had, in 1966, a budget of over \$10 million, or about \$4,000 per student, including correspondence students. On the other hand, the Astrakhan Higher Technical Fisheries Institute had 4,800 students (1,700 full-time) and yet had an estimated budget of only about \$2 million. The explanation for this variation is that the Murmansk Institute trains navigators, radio operators, etc. These fields require expensive electronic equipment and intense technical supervision. The Astrakhan Institute concentrates on less expensive fields of training such as engine mechanics and gear handling.

In 1973, the Soviet Fisheries Ministry budgeted a reported 48 million rubles for its fishery schools, or a little less than 5 percent of its entire budgetary allocations. The average cost per fisheries student would thus amount to about 800 rubles (U.S. \$1,050) per year.

FISHERIES TRAINING FLEET

Introduction.

The Soviet Union's fisheries expanded into a major industry during the 1950's and 1960's. Along with this expansion, the need for qualified fishermen, fleet officers, and seamen increased rapidly. The lure of the sea and the opportunity to see foreign lands attracted many young recruits. However, the newer, larger, and more complex fishery vessels demanded greater expertise in many technical fields.

The growth of the Soviet fishing fleet and its continued modernization were not reflected in Soviet fisheries training. In the 1950's, the Soviet Union had only two fishery training vessels. A rather primitive program of education was provided either in classrooms on the secondary or higher levels, or at sea with various correspondence courses in such marine specialties as navigation, engine mechanics, radio communications, gear technology, and safety at sea. As a result, even the honor graduates from these courses often lacked the practical experience necessary to make efficient high-sea navigators, fishermen, and processors. Indeed, some graduates were simply not cut out for sea-going life, though they had mastered the academics of the field in fishery schools ashore. The results were stagnant productivity at sea, inefficient use of funds earmarked for fisheries training, and dissatisfaction of the more experienced, though less-educated, fishermen with their younger, more educated but less proficient, comrades.

The Ministry of Fisheries responded by providing practical, on-board training to supplement the classroom studies. By grading each student's performance at sea as well as in the classroom, a more accurate ranking of the students and more experienced graduates could be obtained. Thus, in the early 1960's the Ministry began to organize a training fleet for each of the five major fishery administrations: Sevryba, Zapryba, Azcherryba, Kaspyrba, and Dal'ryba.²⁹

The first step in establishing a fishery training fleet was to requisition suitable vessels. During a period when the Soviets had assigned highest

²⁹ The Soviet fishery administrations are divided geographically. Four are in European Russia, one is in the Far East. Their names are a composite of the geographic location and the suffix "ryba" which means fish in Russian. Zapryba for instance is the Zapadnaia Fisheries Administration, located in western (European) Russia. On the other hand, the Dalryba is located in the Soviet Far East.

priority to increasing the fisheries catch, it was a foregone conclusion that only the least productive vessels could be spared. Only old fishing vessels were fitted out for training. In addition, obsolete vessels from the naval and the oceanographic research fleet were turned over to the Fisheries Ministry rather than to the scrap heap.

Later, in the 1960's and 1970's, the acquisition of training vessels was to become a priority. Specially equipped training vessels were ordered abroad by SUDOIMPORT and the Soviets also began domestic construction of training vessels.

The Rise from the Ashes.

Today, the Soviet Fisheries Ministry has at its disposal 22 training vessels, 16 of which were built less than 7 years ago and are equipped with every modern device. Table 1 is a list of these vessels giving a few basic data on each, including their names and tonnage. The total gross registered tonnage of the training fleet is 67,054 tons, the largest in the world and greater than the gross tonnage of the entire fishing fleet in such traditional fishing countries as Belgium, Denmark and Ireland put together.³⁰

³⁰ Only vessels over 100 GRT are counted.

Table 1. U.S.S.R. Fishery training vessels (as of January 1, 1975)

NAME	GRT	VESSEL		BUILT		SERVICE AS TRAINING		
		Class	Type	Year	Country	VESSEL		
						Since	With	Homeport
Barograf	2,600	Atlantik	TP	1973	GDR	1973	Azch.	Sevastopol'
Bataisk.	3,728	Vorkuta	T	1955	Poland	1965	Sev.	Murmansk
Diplot	2,600	Atlantik	TP	1973	GDR	1973	Zap.	Riga
Ekholot	3,813	Grumant	TP	1969	Denmark	1969	Zap.	Riga
Geliograf	2,600	Atlantik	TP	1973	GDR	1973	Dal.	Vladivostok
Grif	239	SRT	T	1950	GDR	1950	Zap.	Riga
Kommissar Polukhin	6,008	Sevastopol'	TP	1968	USSR	1968	Sev.	Murmansk
Kompas	4,734	Grumant	TP	1968	Denmark	1968	Sev.	Murmansk
Kruzenshtern	3,257	Sail	T	1926	Germany	1966	Zap.	Riga
Kurgan	239	SRT	T	1949	GDR	1963	Zap.	Riga
Kurs	3,813	Grumant	TP	1969	Denmark	1969	Azch.	Sevastopol'
Kursograf	2,600	Atlantik	TP	1973	GDR	1973	Zap.	Riga
Kvadrant	2,600	Atlantik	TP	1973	GDR	1973	Dal.	Vladivostok
Lokator	3,843	Grumant	TP	1970	Denmark	1970	Dal.	Vladivostok
Mikhail Korsunov	873	Zelenodolsk	T	1970	USSR	1970	Kasp.	Astrakhan
Navigator	239	SRT	T	1950	GDR	1964	Zap.	Riga
Nikolai Zytsar	6,008	Sevastopol'	TP	1968	USSR	1968	Zap.	Riga
Pelengator	4,734	Grumant	TP	1968	Denmark	1968	Dal.	Vladivostok
Ruslan	239	SRT	T	1951	GDR	1951	Azch.	Sevastopol'
Sedov	3,709	Sail	T	1921	Germany	1966	Zap.	Riga
Volnomer	2,600	Atlantik	TP	1973	GDR	1973	Dal.	Vladivostok
Zabaikal'e	6,008	Sevastopol'	TP	1969	USSR	1969	Dal.	Vladivostok

Azch. = Azcherryba (Azov - Black Sea Fisheries Administration)

Sev. = Sevryba (Northern Fisheries Administration)

Zap. = Zapryba (Western Fisheries Administration)

Dal. = Dalryba (Far Eastern Fisheries Administration)

Kasp. = Kaspyba (Caspian Fisheries Administration)

TP = Training and production vessel. T = Training vessel.

Source: Personal communication to M. Kravanja, Office of International Fisheries, NMFS, NOAA from Mr. E. Ikonnikov-Tsipulin, Deputy Director for Education, Soviet Ministry of Fisheries.

Most of the newer vessels have large tonnage (over 2,600 tons). The older vessels are all small, except two sailing training vessels which were built in Germany soon after World War I. All newer and larger vessels also engage in fishing and are therefore called "training and production" vessels. Any new additions to the fleet will without doubt be training and fishing vessels, so deeply engrained is the study-work approach in Soviet fisheries education.

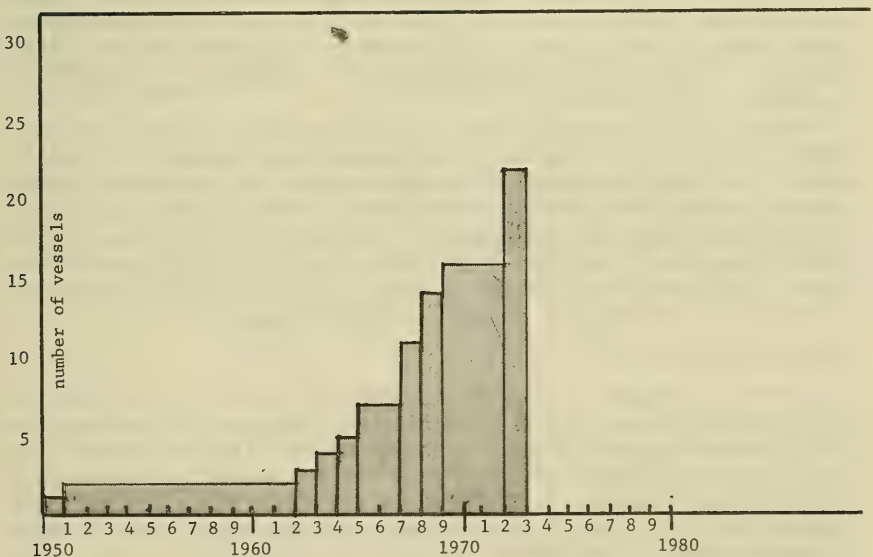
Almost one-half (10) of all vessels was constructed in East German shipyards. Denmark delivered five during 1968-70, one was obtained from Poland and the remaining four vessels were built in Soviet shipyards. The already-mentioned sailing vessels were taken from Germany as war reparations.

Most newer vessels were assigned to the training fleet of the Soviet Fisheries Ministry the year they were built, but it took 40 years for the ex-German sailing craft to land in that Ministry.

Figure 1 shows how precipitous the phoenix-like rise of the training fleet was. It would appear that the basic decision to build it was first taken during the 1961-65 5 Year Plan. Once the Directorate for Personnel and Education of the Fisheries Ministry convinced the "Kollegium"³¹ of the usefulness of on-the-job training aboard operational fishing vessels, funds flowed easily.

³¹ Kollegium is the Executive Board of a Soviet Ministry. It is composed of the Minister, all Deputy Ministers, a few of the top executives, a total of 10-15 persons.

Fig. 1. The growth of the Soviet fisheries training fleet.



Prepared by: Division of International Fisheries Analysis, Office of International Fisheries, NMFS, NOAA, Commerce.

Who Pays the Bill?

Fishery training vessels are legally the property of the various regional fishery administrations, which reportedly have to pay for their costs out of their own operating funds. Whether this includes paying the original purchase price has not been determined. What, if any, portion of their upkeep is contributed by the Fisheries Ministry is also unclear. It would appear that the regional administrations have assumed the entire operational expense of their respective training fleets and that they use the catches obtained by the training fleet to defray part of such expenses.

The annual operational costs of all 22 training vessels are estimated at 20–30 million rubles. What percentage of this amount is covered by the sale of the catch is not known, but it is possible that most expenses are recovered.

In March 1974, a Soviet source³² reported that in 1973 the nine training vessels of the *Zapryba* (page 6) had made a “profit” of 2.4 million rubles from the sale of landed fish. Since the cost of student training was not given, we cannot even speculate on the proportion of recovered expenses.

More than 10,000 Student-Trainees a Year.

Three vessel classes are prevalent in the training fleet, *Grumant*, *Sevastopol*, and *Atlantik*. The *Grumant* class vessels have been equipped with accommodations for 110 students (in addition to a crew of about 70), the other two classes can take on 85 and 90 students respectively.

From the list of Soviet fishery training vessels on page 3, one can calculate that as many as 1,250 students can be trained aboard these vessels at the same time as follows: aboard 6 *Atlantiks*—530 students; aboard 5 *Grumants*—550 students; aboard 2 *Sevastopols*—170 students.

Each of the sailing schooners can accommodate at least 200 students, the rest of the training vessels can accept probably 200–300 more. The total simultaneous trainee capacity of all Soviet fishery training vessels can thus be estimated at about 2,000 students at any one time. Since several different “courses” are given aboard these vessels throughout the year it is believed that the total number of fishery students who make use of such on-the-job training is at least 10,000 a year and possibly as great as 15,000 students.

Global Deployment

In 1975, a majority of the Soviet training vessels (12) is deployed in the Atlantic Ocean and is administratively attached to the Northern and Western Regional Fishery Administrations. The list below gives vessels’ names, classes, the year they were assigned to the training fleet and their homeports. In the Azov and Black Seas Fisheries Administration, only three training vessels are operational, two of them of recent vintage. The Caspian Fisheries Administration has one vessel of medium gross tonnage.

³² Radio Moscow, in a broadcast “For Seamen” of March 27, 1974.

U.S.S.R. Fishery training vessels of the Soviet Ministry of Fisheries
 listed by regional fishery administrations, name and class.
 (data as of January 1, 1975)

SEVRYBA (3)

Bataisk (Vorkuta-1965 - Murmansk)
 Komissar Polukhin (Sevastopol'-1968 - Murmansk)
 Kompas (Grumant-1968 - Murmansk)

ZAPRYBA (9)

Nikolai Zitsar (Sevastopol'-1968 - Riga)
 Ekholot (Grumant-1969 - Riga)
 Diplot (Atlantik-1973 - Riga)
 Kursograf (Atlantik-1973 - Riga)
 Kruzenshtern (Sail-1966 - Riga)
 Sedov (Sail-1966 - Riga)
 Grif (SRT-1950 - Riga)
 Kurgan (SRT-1963 - Riga)
 Navigator (SRT-1964 - Riga)

AZCHERRYBA (3)

Kurs (Grumant-1969 - Sevastopol')
 Barograf (Atlantik-1973 - Sevastopol')
 Ruslan. (SRT-1951 - Sevastopol')

KASPRYBA (1)

Mikhail Korsunov (Zelenodolsk-1970 - Astrakhan)

DALRYBA (7)

Zabaikal'e (Sevastopol'-1969 - Vladivostok)
 Pelengator (Grumant-1968 - Vladivostok)
 Lokator (Grumant-1970 - Vladivostok)
 Volnomer (Atlantik-1973 - Vladivostok)
 Geliograf (Atlantik-1973 - Vladivostok)
 Kvadrant (Atlantik-1973 - Vladivostok)
 Kallisto (Tropik-1970 - only part-time - Vladivostok)

Source: Personal communication to M. Kravanja, Office of International Fisheries, NMFS, NOAA by Mr. E. Ikonnikov-Tsipulin, Deputy Director for Education, Soviet Ministry of Fisheries.

Note: The year in parenthesis indicates when the vessel was assigned to the training fleet.

The Far Eastern Fisheries Administration in Vladivostok was long neglected and did not have any fishery training craft at all. In recent years, however, and after many bitter complaints from Vladivostok, Moscow finally came through: seven modern training vessels were assigned to the Far East, of which one is used for training only part-time. The total gross tonnage of the Soviet training vessels operating in the Pacific is now slightly below 25,000 tons. This tonnage constitutes more than one-third of the total training vessel tonnage, or about the same percentage contributed to the total Soviet fisheries catch by Far Eastern fishermen.

Regional Training Fleets

A short historical summary of the development of the fishery training fleets in each of the five Regional Fisheries Administrations follows:

A. The Northern Fisheries Administration (SEVRYBA):

The Northern Fisheries Administration currently operates three training vessels. Another sailing vessel of Finnish manufacture, *Georgii Ratmanov*, constructed in 1950, was retired.

The remaining three vessels are modern. *Kommissar Polukhin*, (originally the *Karel*), a refrigerated transport, was constructed in the U.S.S.R. in 1968. It serves the dual role of transporting frozen products and training young seamen. The vessel, stationed at Murmansk, is equipped with extra charthouses, a navigational classroom with the latest radio-navigational equipment, and a mechanics training shop. On its first cruise, it took students from the Tobolsk' Navigational School to Iceland and Greenland.

The *Kompas*, a Danish-built stern trawler of the *Grumant* class, was delivered in 1968. Its captain is L. G. Lozhkin. Its students apparently spend the year in classes ashore, but during the summer, when the Barents Sea is free of ice, take a 3-month training cruise.

B. The Western Fisheries Administration (Zapryba)

The Western Fisheries Administration was the first to receive a fleet of training vessels: In 1963, seven small vessels were delivered. Three of these, the *Meridian*, the *Tropik*, and the *Mendeleyev*, were sailing vessels retired from the Soviet Hydrographic Service. They were constructed in Finland between 1948 and 1951 and were adequate only for initial student orientation. The remaining four vessels, the *Kurgan*, the *Grif*, the *Navigator*, and the *Kustanai*, were all medium-sized fishing trawlers (SRT) constructed in the early 1950's. The first three of these were built in East Germany, while the *Kustanai* was of Finnish manufacture.

These vessels, dubbed the "Baltic Fishery Training Squadron" were intended to ply the North and Baltic Seas with crews of about 20 trainees each. This number represented only a small proportion of the total number of students enrolled in the Zapryba fishery training schools. This disadvantage was offset by the fact that the trainee cruises lasted only about a month so that, in good weather, several cruises could be mounted during the year. The number of trainees during 1963-65 increased from 142 to approximately 1,000.

The training fleet was expanded in December 1965 with the addition of two more sailing vessels: The *Georgii Sedov* and the *Kruzenshtern*. Both were built in Germany in 1921 and 1926, as part of prewar World War II Germany's clipper fleet,³³ and were incorporated into the Soviet hydrographic fleet after 1945 as war booty.

Shortly thereafter, three additional old sailing vessels were acquired: the *Ivan Mesiatshev*, the *Kondor*, and the *Professor Rudovits*. These vessels, built in Finland during 1950–51 to pay Soviet war reparation claims, were much smaller (about 120 feet long) than those seized from Germany.

By 1966, the entire Zapryba fishery training fleet (12 vessels) was composed of four medium-side trawlers and eight sailing vessels. Trainees from the secondary and higher fishery schools in Leningrad, Riga, and Tallin thus received some at-sea experience, but had not been trained in the more practical aspects of high seas navigation and fishing. The obvious answer was to supply the training fleet with modern vessels of the same type that the students would operate after their graduation.

In 1968, the large refrigerated transport, *Nikolai Zytsar*, was launched from Riga shipyards in Latvia. The vessel was delivered to the Zapryba to serve as both a transport and a training vessel. Her equipment included an extra charthouse and several laboratories to train the students in navigation, fish-processing, and mechanics. This was the first training fish carrier in the U.S.S.R. The idea of combining a productive vessel with training facilities soon became the rule in the Soviet training fleets.

The largest step in the modernization of the training fleet took place in May 1969 when Zapryba took delivery of the *Ekholot*,³⁴ a stern factory trawler constructed by the Burmeister and Wain shipyards in Denmark. The vessel was specially fitted out as a training vessel, but retained all of the catching and processing capacity of regular factory stern trawlers. The *Ekholot* was one of five identical production-training vessels built by this Danish manufacturer. The *Ekholot* is a stern trawler that can process fish into finished products, including fishmeal and oil. The vessel also has deep-freeze and refrigerated holds and is an ideal training vessel. Navigators, radio operators, technicians, mechanics, fishermen, and processors can all be trained aboard her. There is a classroom for instruction, a library, and a seminar room with equipment for the training of navigators. The vessel is 102.7 meters long and 16 meters wide and is now based in Riga, captained by R. L. Danilov.

In May 1973, East German shipyards completed the construction of another trawler-training vessel, the *Kursograf*, which was delivered to Zapryba. This vessel is basically a variation of the *Atlantik* class stern trawler. It is now based at Riga and has training facilities similar to the *Ekholot*. A third vessel of this type, the *Diplot*, joined the Zapryba fleet shortly thereafter.

One other vessel, the *Zenit*, deserves mention. Although it is officially a training vessel for merchant seamen, fishery trainees apparently also take part in her cruises for training as navigators and

³³ Each was 376 feet long

³⁴ The word means "echosounder" in Russian.

radio operators. The vessel is more than 300 meters long with a capacity of 120 students and is fitted out for both research and training.

The Zapryba training fleet is presently made up of nine vessels. A major public debate has raged concerning whether the old sailing vessels should be retired, and those favoring retirement are succeeding. Of the original eight sailing vessels, all but two have been retired the *Kruzenshtern* and the *Georgii Sedov*. The old SRT's, *Kurgan*, *Grif*, and *Navigator*, are still operating in the Baltic, but were reportedly to be retired in 1975. The *Kustanai* has apparently already been retired.

C. Azov-Black Sea Fisheries Administration (Azcheryba).

This relatively small administration operates three training vessels.

The first is a medium side trawler (SRT) named *Ruslan* which was detached from the fishing fleet for training purposes in 1951, the year it was built.

The second vessel, the *Kurs*, another of the Danish-built trainers of the *Grumant* class, was delivered in 1969. Students of the Kherson Navigational School make use of this vessel. In early 1974, the vessel, with students aboard, paid a friendship visit to Cuba.

The third vessel, the *Barograf*, was delivered in 1973 from East Germany.

Two older sailing vessels, the *Kropotkii* and the *Meteor*, constructed in the late 1950's, used to serve the fishery schools located at Sevastopol and Odessa, but reportedly have been retired.

D. The Far Eastern Fisheries Administration (Dal'ryba).

Commensurate with the rapid growth of the Far Eastern fisheries in general, Dal'ryba has recently rapidly expanded its training fleet. Prior to 1968, Dal'ryba operated only two training vessels. The first, the *Gogol*, was an old sailing vessel constructed in Germany in 1922. The other was a retired cargo vessel, the *Meridian*, which operated out of Vladivostok and was attached to the Admiral Nevel'skii Far Eastern Higher Nautical Engineering School. It is believed that both of these vessels were phased out of the Dal'ryba training roster in the late 1960's.

In 1968, the Fisheries Ministry moved to update the Far Eastern fisheries training fleet with the delivery of the *Pelengator*. This was the first production-training vessel. An identical vessel, the *Lokator*, was delivered 2 years later. In addition, the Dal'ryba received the *Zabaikal'e*, a large factory baseship of the *Iantarnii* class constructed in the U.S.S.R. This vessel, together with the *Pelengator*, was deployed to Nakhodka, which demonstrates the special priority given to the development of this expanding new fishing port.

In 1970, the stern factory trawler *Kallisto* of the *Tropik* class was delivered from the shipyards in East Germany. It currently serves as a short-term training vessel. Students come aboard for 10-day "mini-courses," after which they take an examination.

In 1973, the Far Eastern training fleet became the most modern in the U.S.S.R. with the delivery of the first three of a series of identical training vessels on order from East Germany. The *Geliograf*, *Volnomer*, and *Kvadrant* are all super trawlers of the *Atlantik* class specially outfitted to serve as training vessels.

Thus, the number of full-time Dal'ryba fishery training vessels has grown to six. All have been constructed since 1968 in contrast to the much older fleet of Zapryba. This indicates that the fisheries training fleet is no longer considered a depot for obsolete vessels, but is becoming a major segment of the Soviet fishing fleet.

Conclusion.

The Soviet Union has committed itself to the maintenance of a modern fisheries training fleet to prepare its students in all aspects of the fisheries profession. The cost of this type of training is high, but the Soviet Government obviously feels it is a useful investment. However, the training vessels are advanced, productive fishery vessels in their own right. They travel to faraway fishing grounds and catch and sell fish to the state thereby partially returning some funds spent on their crew's education.

There have been suggestions that a more realistic way to train new fishermen would be to place one or two trainees on the actual fishing vessels for a trip with other fishermen. As far as it is known, this kind of apprenticeship is not currently practiced, though the production-and-training vessel idea is certainly a step in that direction.



Photo 1. Fisheries training vessel Kurs was constructed in Danish shipyards. It can accommodate 182 persons, including about 110 student trainees.



Photo 2. Fisheries training vessel Pelengator was launched in Denmark in 1968 for Soviet Pacific fishermen. This 102-meter long stern freezer trawler is used to train young students in the use of modern fishing gear.



Photo 3. Crew Messroom aboard the training stern trawler *Pelengator*. Cabins and messrooms are decorated in tasteful, contemporary style and are equipped with modern and practical furniture.



Photo 4. The Soviet stern trawler Lokator, built in Denmark in 1970 was sighted off Alaska in December of that year by fishery enforcement officers of the National Marine Fisheries Service.

CONSUMPTION OF FISHERY PRODUCTS

WHY MORE FISH PROTEINS?

The marine fishery resources in 1974 were the source of an estimated one sixth of the total edible protein of animal origin consumed by the ever-increasing world population, according to the Deputy Director of the Shirshov Institute of Oceanology of the Soviet Academy of Sciences.³⁵ Of this total, the Soviet Union harvested about 12-13 percent, a figure considerably above the proportion of its population (251 million in 1974) to the estimated world population of about 3 billion souls.

The Soviet fisheries catch per capita has increased in almost every year of the Soviet Union's history, keeping pace with increasing population. In 1975, over 40 kilograms per Soviet citizen of fish, shellfish, and other aquatic animals were caught compared to 10 kilograms in 1950, an increase of 300 percent. (See table 1.) The Soviet expansion of the fishing industry has been both dramatic and consistent, and the decision of the leadership of the country to encourage such an expansion is traceable directly to domestic requirements for food. The Soviet agricultural sector which, since the 1930's has been a weak link in the Soviet economy, was especially depressed in the years immediately after the World War II because heavy battle losses of young men have made male farm manpower almost unavailable. In addition, the Soviet Party, faced with the task of rebuilding basic industries destroyed in war, was slow in promoting the development of its agricultural sector (peasants were traditionally a conservative element in the Soviet society). Thus, the decision by the Soviet Government to turn to fishery products as an increasingly important source of animal protein was made primarily for economic reasons, but political and strategic reasons probably also played a part.

Soviet writers have explained in some detail why it was economically advantageous for the Soviet Union to turn to fisheries. S. V. Mikhailov, writing in the *Okeanologiya*,³⁶ stated that "to produce 100 kilograms of live-weight beef, it takes a capital investment of 2,000-2,500 rubles. But for a similar amount of fish only about 1,500-1,700 rubles are necessary." One must remember that arable land is a relatively modest proportion of the total surface area of the U.S.S.R., a country where permafrost, deserts and dense forests extend for thousands of miles. The growing season is subject to severe climactic extremes, and, in drought or flood years, crops may be severely damaged.

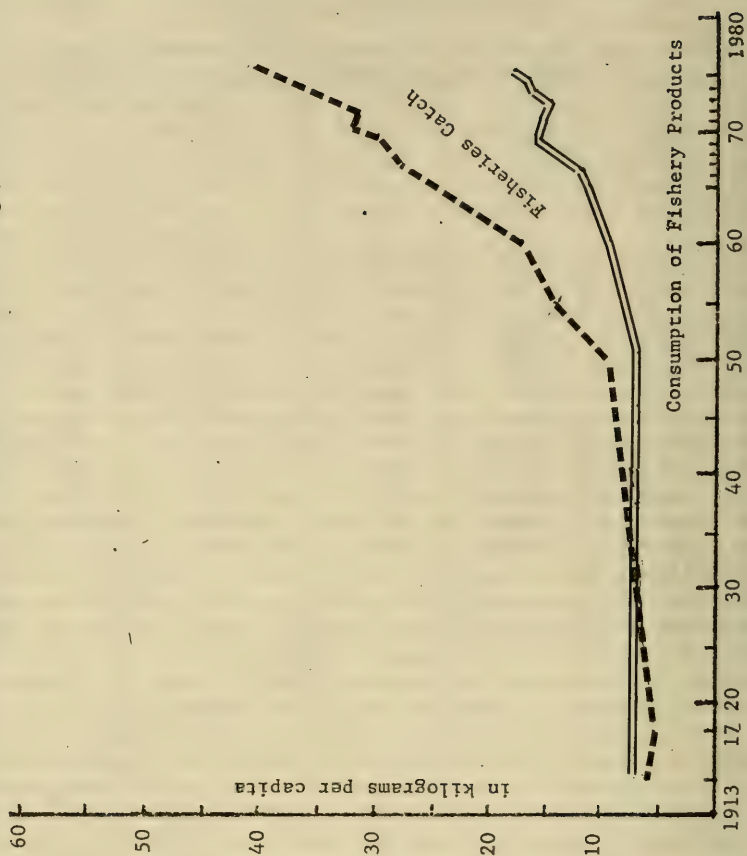
³⁵Dr. A. A. Aksekov writing in *Vodnii Transport* of June 18, 1974.

³⁶*Okeanologiya* (1962), pp. 385-7.

Table 1. Soviet Union. Consumption of Fishery Products, 1913-1975.

YEAR	Soviet population (in million)	Fisheries catch (in million metric tons)	Fisheries catch per capita (in kg.)	Consumption of fishery products (in kg/capita)	Consumption as a % of catch (kg/capita)
1913	159.2	1.051	6.6	6.7	101.5
1917	163.0	.893	5.5	n.a.	n.a.
1920	n.a.	.257	n.a.	n.a.	n.a.
1925	n.a.	.721	n.a.	n.a.	n.a.
1930	n.a.	1.283	n.a.	n.a.	n.a.
1935	n.a.	1.520	n.a.	n.a.	n.a.
1940	194.1	1.404	7.2	n.a.	n.a.
1945	n.a.	1.125	n.a.	n.a.	n.a.
1950	178.5	1.755	9.8	7.0	71.4
1955	194.4	2.737	14.1	8.7	61.7
1960	212.4	3.541	16.7	9.9	59.3
1965	229.6	5.774	25.1	12.6	50.2
1966	232.2	6.093	26.2	12.9	49.2
1967	234.8	6.538	27.8	13.2	47.5
1968	237.2	6.784	28.6	14.0	49.0
1969	239.5	7.082	29.6	15.8	53.4
1970	241.7	7.828	32.4	15.4	47.5
1971	243.9	7.785	31.9	15.2	47.6
1972	246.3	8.209	33.3	15.1	45.3
1973	248.6	9.005	36.2	16.1	44.5
1974	250.9	9.600	38.3	16.5	43.1
1975	253.3	10.300	40.7	(est) 17.0	
1976	256				
1977	258				
1978	261				
1979	263				
1980	266				

Fig. 1. U.S.S.R. Fisheries catch and human consumption of fishery products per capita, 1913-1980 (in kg.).



Prepared by: Division of International Fisheries Analysis, Office of International Fisheries, NMFS, NOAA, Commerce.

In the labor-scarce Soviet economy of the post-war era there was another comparative advantage the fishing industry had. In the same article, Mr. Mikhailov explained: "To produce one head of beef requires 20 man-days, but the production of a similar amount of protein from fishery products would take only about 5-man-days."

It was thus clear to the Soviet planners that the fishing industry would provide animal protein with greater efficiency and more of it than if an equivalent amount of investment would be channeled into other food-producing sectors of the Soviet economy.

The political and economic reasons for expanding the fishing industry have also been buttressed by the data of the nutritional scientists. The Soviet Institute of Nutrition of the Soviet Academy of Medical Sciences calculated that each Soviet citizen should consume on the average about 18.2 kilograms of fishery products per year to maintain the optimal nutritional balance.

AN HISTORICAL PERSPECTIVE

The consumption of edible fishery products in the Soviet Union, stationary during the first 30 years of Soviet rule, has kept pace with the increasing population ever since the early 1950's (fig. 1), except when Soviet fishermen encountered an exceedingly difficult fishing season in 1971. That year their total catch was smaller than the year before and the average consumption, which had peaked in 1969 to 15.8 kg per inhabitant per year, began a 4-year decline. This unfavorable trend was reversed in 1973 when the upward curve of fishery products consumption resumed its vigorous pace.

Table 1 gives the per capita consumption in figures furnished by the Soviet annual statistical yearbook, the *Narodnoe Khoziaistvo* (National Economy). It is one of the few sets of fishery statistical data regularly furnished by the Soviet Government.³⁷ Most of the early figures are not available. They must have been unimpressive: in 1950, the Soviet per capita consumption of fishery products was about the same as it was in 1913. From 1950 on, however, the increase was sustained with a short interruption during 1970-72. By 1974, almost 17 kg of fish and other fishery products were consumed by the average Soviet citizen. In 1975, an important milestone in Soviet nutrition will be attained: the estimated consumption of over 18 kg per person will have reached the level of 18.2 kg which the Soviet Institute of Nutrition proclaimed as the optimal level in balanced nutrition.

The Soviet Government has encouraged the upward trend in the consumption of fishery products by writing it into the 5 Year Plans. In 1975, per capita consumption will lag considerably behind the planned amount. When the Ninth 5 Year Plan (1971-75) was first published, Soviet fishery planners projected a consumption of 21.7 kg per person by 1975. The same figure was repeated in 1972 in an editorial published in the official publication of the Fisheries Ministry³⁸ as well as a year later by the Soviet Minister of Fisheries Ishkov himself. Mr. Ishkov wrote that the consumer demand in the Soviet Union, which apparently is somewhat above the optimal nutritional

³⁷ The others are: catch data and production of fishery commodities furnished to FAO in Rome, and truncated trade statistics available in the Soviet Foreign Trade annual.

³⁸ *Rybnoe Khoziaistvo*, February 1972, pp. 3-5. The anonymous writer stated unequivocally: "... by 1975, the edible fisheries consumption must reach 22 kg."

level determined by the Institute of Nutrition, will be completely satisfied when the consumption of fishery products will reach "20-22 kilograms in 1975."³⁹

In July 1975, however, Mr. Ishkov as much as admitted that the original planned goal will not be reached. Writing in honor of the annual Fishermen's Day, he casually mentioned that in 1975 the per capita fisheries consumption will reach the levels determined by the nutritionists, or 18.2 kg per year.⁴⁰ He also predicted that the 20 kg level will be reached in a few years.

The question remains: what will the Soviet Government and the Fisheries Ministry do after the estimated domestic demand of 20-22 kg of fishery products per capita will be fully satisfied? This will most likely occur by 1977-78 if an expected fisheries catch of 11-12 million metric tons can be obtained. Will the Ministry allow the catches to stabilize and level off? Current plans for the construction of new fishery vessels seem to indicate that the future years will see a continuing increase in the fisheries catch, provided the world maximum sustainable yield (MSY) of fishery stocks is not reached too soon and the extension of fishery limits to 200 miles does not deprive the Soviet fishermen of their most important fishing grounds.

Catches larger than 12 million tons will probably induce the Soviet traders to increase exports of fishery products even more than in the past. In 1959, the U.S.S.R. reversed its former position as a net importer of such products and became a net exporter. By 1970, Soviet fishery exports exceeded the imports by \$76 million; by 1974 the difference amounted to \$142 million.

There is some evidence that the Soviet Union is now gearing for a major fishery export campaign of which the International Fisheries Exhibition in Leningrad was one of the first steps. Other initiatives are being taken throughout the world to increase contacts between Soviet fishery attaches and other trade and diplomatic representatives to secure additional export opportunities in developing and developed countries.

The most recent figures on fisheries consumption in the U.S.S.R. were announced by Deputy Minister of Fisheries for Research Sergei Studenetskii in early 1976.⁴¹ According to his data, which are not as yet official government statistics, the 1975 per capita consumption of fish in the Soviet Union was 16.9 kg. This figure is well below the 18.2 kg mentioned by Mr. Ishkov in July 1975, and seems to indicate a serious problem in getting fish to the table of the Soviet consumer. For example, if this 16.9 kg figure is correct, then only 41.5 percent of the total live weight of the Soviet catch in 1975 (10.3 million metric tons) was consumed by the Soviet public. The remaining 58.5 percent was either exported, stored, used for nonedible products (fishmeal, oil, etc.), or else went to waste. Mr. Studenetskii, in his announcement, gave no explanation for the failure to reach in 1975 the 18.2 kg per capita consumption of fishery products so

³⁹ Rybnoe Khoziaistvo, May 1973, pp. 3-5.

⁴⁰ "It was scientifically determined that 18.2 kilograms of fishery products is the optimal yearly requirement for the average Soviet citizen. This year the fishing industry will meet this requirement and in the next 2 or 3 years will reach an amount in excess of 20 kilograms (of fishery products per capita)." In: *Vodnii Transport*, July 12, 1975.

⁴¹ Moscow Radio, Jan. 14, 1976.

prominently announced by his boss, Minister Ishkov, only a few months earlier. In fact, his statement was made without any comment except to mention that the Soviet consumption of fishery products had increased to 16.9 kg from 15.4 kg in 1970.

WHICH MINISTRY WILL SELL THE FISH?

The consumption of edible fishery products has increased at a much slower pace than the per capita fisheries catch, indicating that much of the catch in recent years was either processed into fishmeal, or filleted with a resulting loss of offal. This, aboard Soviet vessels, is always reduced to fish meal. What percentage of the unused fisheries catch is due to spoilage is not known.

Soviet writers frequently point out that while the Soviet Ministry of Fisheries is responsible for Soviet catches until they are brought to shore and processed, the Soviet Ministry of Domestic Trade is responsible for the marketing of finished fishery products. Whatever little direct information is available on the Soviet marketing net, it all seems to indicate that the system is poorly managed and that much of the fisheries production is not being handled according to the latest technological and marketing practices. The fishery wares, which have been seen by various U.S. fishery delegations and other U.S. citizens traveling throughout the Soviet Union, indicate that the Soviets are much more successful in harvesting and processing the catch than in marketing it. There is but little doubt that the Soviet fisheries hierarchy is painfully aware of the fact that the Ministry of Domestic Trade is apparently unable to insure a rapid and universal distribution of wholesome fishery products. More than one-half of the finished products are sold frozen. Quick-frozen fish requires a much higher level of distribution and marketing technology than other, more traditional commodities (salted fish) which the Soviet fish-processing workers produced in the past. The Trade Ministry is ill-equipped in providing it.

The debate between the Ministry of Domestic Trade and the Ministry of Fisheries has been going on for years. It is difficult for the outsiders to penetrate the curtains of Soviet bureaucratic jockeying, but every so often one or the other Ministries obtains sufficient support within the system (most often through Party connections) to vent their gripes in public. The Ministry of Fisheries has done so repeatedly.

In late 1970, the *Izvestiia* correspondent Demidov described the controversy in the following terms.⁴²

During one of my recent visits to the Ministry of Fisheries, I was a witness to a talk between the Chief of the Administration for Resources, Deliveries, and Sale of Fisheries Production (Glavrybsbyt) E. Gromov and the Deputy Chief of Glavprodtorg of the U.S.S.R. Ministry of (Domestic) Trade, N. Ratushnii. It went about as follows:

Gromov. The fleet is standing idle, the entire capacity is filled with fish, but your organizations do not give orders for the acceptance of output.

Ratushnii. You don't give (us the data on) the right output. They don't take the fish you offer; for example, some kind of hake . . .

The contracting parties agreed that the Trade (Ministry) nevertheless would take "some kind of hake." I left the Ministry with perplexed feeling. I remembered,

⁴² *Izvestiia*, December 20, 1970 (Demidov, P.: "Fish shortages in stores deplored").

how in Vladivostok we had to discuss no less important problems, but there was no division into mine and yours, everything was ours. . . .

The Soviet fisheries catch in 1970 increased by 10.5 percent over that of the previous year and it would take a superb marketing and sales organization to absorb it in its trading network for delivery to consumers in a wholesome state. The Soviet Ministry of Domestic Trade obviously was unable to perform that service and, as the polemics continued, an important Soviet fisheries official called for the transfer of the wholesale fish marketing function to Minrybkhhoz.⁴³

The article, one of the best and most informative ever written on this subject, was authored by the Chief of the Fish Marketing Administration of the Northern Regional Fisheries Administration (Sevryba), Mr. P. Efimov. It is given in appendix 1 in its entirety. Efimov accuses the Ministry of Domestic Trade of simply distributing rather than promoting fishery products, of an inability to make available a wide assortment of such wares, of not having expanded its wholesale facilities to the degree the population increases demanded, and of shipping fishery products across the entire U.S.S.R. rather than selling them in nearby population centers at lower cost. The publication of the article in the *Ekonomicheskaja Gazeta*, the organ of the Central Committee of the Soviet Communist Party must have caused shudders in the Ministry of Domestic Trade.

Nothing happened, however, and when in August 1973, the redoubtable Soviet Fisheries Minister, Mr. Ishkov, used an interview with a prestigious Soviet trade publication⁴⁴ to discuss his Ministry's trials and tribulations with other Soviet bureaucracies, he was much more restrained in his statement:

It is even worse when a fish product obtained . . . from the depths of the Indian Ocean, is poorly stored and time is allowed to pass (before) the organization sells it. . . . The Ministry of (Domestic) Trade and the Central Union of Consumers' Societies must think about this. They must also help us in advertising marine products to inform the buyers that fish is healthful and contains protein and many other useful substances.

The marketing problems, however, did not abate and in June 1974, the Secretary of the Klajpeda⁴⁵ City Committee, Mr. D. Rozhnov wrote:

There are large stocks of frozen fish that can't be sold until they've been processed (like sardines). But nobody has organized their processing; for several years there have been negotiations between MinFish and MinTrade as to who should organize processing, but nothing has been decided.⁴⁶

Another glaring example of the inefficiencies in the fish-marketing system appeared, again in *Ekonomicheskaja Gazeta*, in December 1974. The author is picturing one day in the life of the Ukrainian Fishery Marketing enterprises. He alludes to the fact that there are two ministries which have "complete and unconditional control" over fishery

⁴³ Ministerstvo Rybnogo Khoziaistva, abbreviated Minrybkhhoz, is the Russian term for the Soviet Fisheries Ministry (often improperly translated as the "Ministry of Fish Economy").

⁴⁴ Interview with U.S.S.R. Minister of Fisheries Aleksandr Akimovich Ishkov: "The Soviet People and the Riches of the Seas and Internal Waters." In: *Kommercheskii Vestnik*, No. 8, August 1973.

⁴⁵ A major fishing port in Lithuania.

⁴⁶ *Vodnii Transport*, June 18, 1974.

catches. The Fisheries Ministry catches the fish, freezes it, and delivers it to Soviet ports, where the (Domestic) Trade Ministry takes over and sells it. However, a funny thing happens to fish on the way to consumers: it gets waylaid by the "esteemed trading agencies," as the author points out sarcastically. (Additional details can be found in appendix 2).

The infighting continues. There is no doubt that Soviet marketing practices will improve as Soviet managers become more familiar with the advanced packaging and distributing techniques of the West. Whether wholesale fishery marketing will improve greatly unless and until the Ministry of Fisheries achieves a greater marketing role—if not "complete control"—is problematic.

The simplest solution would be to give the MinFish full and undisputed control of all fishery processing and wholesale distribution. The retail distribution would remain the province of the Ministry of Domestic Trade if it would provide modern stores equipped with cold-storage and refrigeration facilities. Such stores, called *Okean* (Ocean) have been seen in Moscow. They were constructed recently and can compete with anything available in capitalist countries. However, Moscow is not the Soviet Union: its population is only 2 percent of the total. The fish marketing practices in the rest of the U.S.S.R., with the exception of the largest cities, remain appalling.

The fact that such a major bureaucratic infighter as is the present Fisheries Minister, Mr. Ishkov, was unable to achieve a satisfactory solution of the problem does not bode well for the future of Soviet fisheries. After all, Ishkov has been the Fisheries Minister since 1935 and has survived Stalin, Malenkov, and Khrushchev not to speak of lesser lights like Bulganin, Beria, Molotov, etc. They were all disgraced, but Ishkov remained in his position and expanded his fisheries "empire" tenfold. He is an (alternate) member of the Central Committee, knows Premier Kosygin well from the days when the latter was the Minister of Food Industries, has friends in the Planning Commission⁴⁷ as well as throughout Moscow and its bureaucratic layers.

The probable reason for MinFish's inability to achieve a reasonable solution is a political fact: the Soviet Minister of Domestic Trade, Mr. Aleksandr Ivanovich Struev, is a full member of the Central Committee, while Mr. Ishkov is only an alternate member. In other words, Struev outranks Ishkov in the party hierarchy. That is a distinction of crucial importance in the Soviet Union.

FISHERY EXHIBITIONS IN LENINGRAD

Inspired by glistening examples of the marketing techniques practiced at trade fairs in Western Europe, the Soviet Fisheries Ministry requested the government to be allowed to hold a major commercial exhibition in Leningrad on the 50th anniversary of the Bolshevik Revolution, which began in that city in 1917.

The Ministry hoped to attract foreign companies to exhibit advanced fisheries technology and also to introduce its own executive and administrative personnel to foreign machinery, gear, and equipment. This was especially desirable in the field of fish processing, where the

⁴⁷ The Soviet Planning Commission has a "Fishing Industry Section" which coordinates planning for the development of fisheries.

Soviets lagged far behind the technologically advanced countries of Western Europe.

At the same time, the Ministry lavishly showed off some of its own achievements, including a spirited display of fishery support vessels in the nearby port area of Vasilevskii Island in the Gulf of Finland. The Soviet Minister of Fisheries also succeeded in having Mr. Kiril Mazurov, a member of the Politbureau of the Soviet Communist Party and one of the most important strategists of Soviet ocean policies, attend and give the opening speech.

Once the first "Inrybprom" exhibition was successfully held in 1968, it was relatively easy to obtain the government's support for a second exhibition 7 years later.

The Second International Fisheries Exhibition, or Inrybprom-75 for short, was held in Leningrad from August 6 to 20, 1975. The exhibition was aimed at furthering the U.S.S.R.'s international commercial relations, and specifically, at continuing the drive to increase exports of Soviet fishery products, fishing vessels, and other fishing equipment. The latest achievements in the Soviet fishing industry and increased Soviet emphasis on foreign relations in fisheries were again very much in evidence at the exhibition and provided a capsule illustration of the industry's trends.

Attendance figures show that about 700,000 visitors, of whom 250,000 were specialists from various Soviet ministries and companies, visited or participated in the exhibition. The attendance at the 1975 exhibition was lower than in 1968, when 1.5 million visitors were registered, but this may be due to the fact that Inrybprom-68 was part of the year-long celebration of the 50th anniversary of the October Revolution.

While attendance was down, the 1975 exhibition in physical terms was larger than in 1968. Representing the U.S.S.R. were 400 organizations and 40 ministries and departments. A total of 284 foreign firms staged separate exhibits and displayed products manufactured by over 600 firms. The Soviet Ministry of Foreign Trade operated a commercial center, and 50 "production associations" (Soviet State-owned companies) sent representatives to examine foreign products and to conclude contracts. Preliminary Soviet reports indicate that 150 million rubles (U.S. \$202.7 million) in contracts were signed, twice as much as in 1968, when final contracts totaled 75 million rubles (U.S. \$83.3 million).⁴⁸ Inrybprom-75 proved to be more business than show.

The principal theme of Inrybprom-75 was the preservation and restoration of marine resources. However, the emphasis of the U.S.S.R.'s exhibits, over 4,000 items and pieces of equipment, was on the exploitation of fishery resources and the automation of fishing operations. The U.S.S.R. strove to demonstrate in various exhibits that she holds a leading position in fisheries production, vessel construction, and fishery sciences. Fish farming and transplantation of fish stocks were also given special emphasis. Prominently displayed were Soviet-made underwater fishery research vehicles of the Tinro and Atlant classes. The largest foreign contingent of exhibitors was from the Federal Republic of Germany. The Polish exhibits were next in size, represented prominently by a number of fishing vessels

⁴⁸ The exchange rate in 1968 was \$1.11 equals 1 ruble; the exchange rate in 1975 was \$1.35 equals 1 ruble and in 1976 1 ruble is worth \$1.32.

built by Polish shipyards for the Soviet fishing fleet and displayed at the site of the exhibition. The German Democratic Republic also had a large exhibit. Soviet visitors to the exhibition could not avoid the clear evidence of dominant German participation. Taken together, the Federal Republic of Germany and German Democratic Republic exhibits occupied practically half of the total exhibition space. Displays of other nations included a wide range of standard gear and equipment.

The United States' participation in Inrybprom-75 was minimal. The United States was represented by a single firm from Rhode Island, the Xodar Corporation, which deals in aquaculture and filtration systems, industrial aeration, ultra-violet sterilization, and pollution testing and consulting. The example of Xodar Corporation should serve as encouragement to other U.S. firms engaged in the manufacture of fishing industry-related products. Although trade with the Soviet Union may seem like a complicated proposition, the Soviet fishing industry is becoming more accessible to foreign companies through such activities as Inrybprom-75.

APPENDIX 1

AN ACUTE PROBLEM

The development of fisheries in the Far East and the organization of fish marketing were described in the article "The Results of One Year." Because Murmansk fishermen, as is true for Sakhalin fishermen, are troubled by the problems of satisfying the public's demand for fish products more fully, we will continue the discussion.

We agree with the author of that article that fish marketing is not being managed satisfactorily. The wholesale centers of the Ministry of Trade's Myasorybtorg Trust view their task simplistically. Having received fresh, frozen, or salted fish, all they need to do is distribute it to the stores, and their problems are over.

But in reality the responsibilities of the wholesale centers have an entirely different nature. They are supposed to process a substantial part of the fish they receive and offer a wide assortment of products to the consumers.

When there was not enough fish and it was sold immediately at the stores, no special attention was given to the fact that the wholesale centers were acting only as a transferring link. But the situation has changed. The amount of fish to be sold is getting greater, and thought must be given to assortment diversity. With this purpose, new processing enterprises must be set up under wholesale center administration at the points of consumption, and existing ones must be enlarged.

Ministry of Trade organizations have been involved with wholesale fish marketing for many years, but the situation in fish processing at the places of consumption has not changed for the better. Let us look at Leningrad as an example. Back in the 1930's, the Leningrad wholesale marketing center possessed two enterprises, a fish combine and a fish curing plant. These two enterprises exist to this day. Their output has been increased through renovation by 15-20 percent, while the city's population has doubled in this period. Thus it is not surprising that there are not more than 5-6 types of culinary products

on the counters of even the large stores of Leningrad. The situation is the same in Kiev and other cities.

This is why employees of the fishing industry propose transferring wholesale fish marketing to the Soviet Fisheries Ministry.

There is a second problem of no little importance. Definite, permanent areas for marketing the products must be assigned to each regional fisheries administration. Such a measure would prevent crossed shipments which cost the state dearly. Today it is not infrequent that, for example, silver hake is sent to the Ukraine from Vladivostok, and into Siberia from Black Sea ports.

If specific marketing zones are assigned, we would eliminate shipments of fish products to one point simultaneously from different regions. Fishery regional managers would have a better possibility to study consumer demand and the market situation, and organize advertising for marine fish. And, finally, contracts could be made firmer.

As long ago as 1964 the author* of this article raised the question on the pages of "*Ekonomicheskaja Gazeta*" of eliminating crossed shipments of fish and assigning specific areas to the fishery basins for marketing fish products. At that time the Ministry of Trade was able to convince us that such actions would not have been expedient. It may be that such a solution was premature. However, regionalization of the shipments is necessary now.

APPENDIX 2

"Fish" Suffering ("Rybnye" *stradaniia*) from *Ekonomicheskaja gazeta* No. 49, December 1974.

The fate of fish catch while on board vessels or during the unloading from the vessels is placed, as is well known, under the complete and unconditional control of the Ministry of Fisheries of the U.S.S.R. At the Il'ichevsk fishing port *Chernomor'rybpromsbyt* (Black Sea Fishery Marketing Organization), under the same ministry receives the caught and frozen fish and transfers it, again in complete unconditional control, to another agency. So as not to burden the readers with superfluous details, let us name only a few of the esteemed trading agencies engaged in this tedious work: *Glavprodtorg Mintorga U.S.S.R.* (Main Administration for Commercial Products Trade of the U.S.S.R. Ministry of Trade), *Ukrmiasorybtorg Mintorga U.S.S.R.* (Ukrainian Meat and Fish Trade Administration of the Ukrainian Ministry of Trade), regional (oblast') meat and fish markets, and stores.

Everything would be fine, if only something bad didn't happen. For example, a train barely departs from Vinnitsa with marine fish when thunder and lightning resound from there—a telegram "Please do not send the frozen scad—we can't accept or pay for it—overstocked!"—signed *Miasotorg Aza*.

A train hadn't even succeeded in getting up speed toward Dnepropetrovsk when a humble request flies from there: "Don't load the hake, scad, mackerel or canned fish for the Dnepropetrovsk combine. We can't pay. Babentsov."

* Source: Efimov, P. "An Acute Problem", "*Ekonomicheskaja Gazeta*" No. 23 (June 1972) p: 14. Translated from Russian by JPRS. P. Efimov is Chief of the Fish Marketing Administration of the Northern Fisheries Administration (Sevrybsbyt) in Murmansk.

An so on . . . from Voroshilovgrad "We won't accept or pay for this fish"—from Lutsk "We refuse the fish supplies"—from Kramatorsk "Don't load the scad, mackerel, herring, sardines, hake and caselin—we won't pay for it."

But from the sea the vessels loaded with fish send disaster signals: "Unload!" "Take away the fish! We're incurring losses!"

The Ministry of Fisheries of the U.S.S.R. devised a plan according to which *Chernomorrbpromsbyt* was supposed to send to Ukrainian cities in the second quarter of the year 1,800 tons of scad and mackerel and 6,500 tons of hake. However, *Glavprodorg* of the U.S.S.R. Ministry of Trade devised a plan for the same period and for the same cities by which they were supposed to receive 8,000 tons of hake and 800 tons of scad and mackerel!

The U.S.S.R. Ministry of Fisheries devises a production plan for fish canned in oil. *Glavprodorg* distributes them. But *Ukrmiasorybtor* sends out directive No. T-60-154 with the signature of the assistant director L. Solonichenko with the following: "Don't send the mackerel and scad canned in oil. We're overstocked."

In the document No. T-60-530 Comrade Solonichenko was even more laconic: "Don't send fish canned in oil."

Questions arise: Why is it like this? Why should fish be sent to those who don't need it? Perhaps instead of sending it to Zhitomir and Chernigov, why not send the fish to Cheliabinsk and Magnitogorsk? Or to Perm' or to Dushanbe?

Incidentally, this very same *Chernomorrbpromsbyt* did not return even one centner⁴⁹ of fish back to the ocean and in the end found buyers. Obviously the suppliers of trading organizations need to look more often at the interior, at the rural localities and should organize the sale of fish from special trucks.

N. Kvitko.

Translated by T. Sanz, National Marine Fisheries Service, NOAA.

APPENDIX 3

SOVIET VIEWS ON LAW OF THE SEA ISSUES

The United Nation's Law of the Sea (LOS) Conference convened its third substantive session in New York City on March 15, 1976. Many of the major issues of this conference were presented prior to its opening in the Soviet daily *Pravda* in an article entitled "Détente and the World's Oceans" by S. Pavlov. According to Pavlov's article, the Soviet Union's official policy in regard to international law of the sea stems from the increasing use of the oceans by all countries of the world. The development of international cooperation on the high seas depends largely on the procedure for law and order that is established to control the world ocean environment. To establish such a procedure is the main task of the United Nations Law of the Sea Conference.

Among the most important LOS issues is the problem of extension of the Territorial Sea. The Soviet Union, according to the *Pravda* article, advocates a 12-mile territorial sea for every country. World-wide claims of a 200-mile territorial sea would result in 40 percent

⁴⁹ Centner equals 100 kg.

of the total ocean area being removed from general use by all countries. However, the Soviet Union does support the concept of the so-called "200-mile economic zone" under which the coastal states have sovereign rights to all living and mineral resources within their respective zones. By supporting this concept, the Soviets hope to show their concern for the developing nations of the world. On the other hand, they are also concerned about the future of their high seas fishing fleet, which takes the largest percentage of its catch off foreign shores. To reconcile these two concerns, the Soviet Union supports the idea that if a coastal state fishes only part of the resources within its 200-mile economic zone (EZ), then fishermen from other countries should be allowed to fish the unutilized portion. "Developing" coastal states, *Pravda* declares, should receive compensation for allowing foreign vessels to fish in their economic zones.

Concerning the 50 countries of the world which have limited access to the ocean (no coastline or very short coastline), Mr. Pavlov states that the Soviet Union advocates that these countries be granted certain rights regarding the use of the resources within the 200-mile economic zones.

Another extremely important LOS issue concerns the right of unhindered navigation by vessels of all flags through international straits. According to Pavlov, the Soviet Union views the right of free passage through these straits as vital in giving "aid to young independent states which . . . become the targets of aggressive intrigues by the imperialistic forces." Special care should be taken to preserve the internal security of countries bordering on the straits.

Other important issues discussed in the *Pravda* article include pollution, marine research, and the use of the seabed beyond the Continental Shelf. The Soviet Union has expressed concern that if individual countries are allowed to establish pollution standards and regulations stricter than international controls, the developing nations may find it hard to pay the high costs of meeting such standards. This, according to the Soviet Union, would make it more difficult for these countries to create their own merchant fleets and fishing industries. (Source: S. Pavlov, "Detente and the World's Oceans"; Moscow: *Pravda*, February 12, 1976.)

U.S./U.S.S.R. COOPERATION IN FISHERIES

(By Lorry M. Nakatsu ¹)

Cooperation in fisheries between the United States and the Soviet Union has its genesis essentially in the desire of both countries to seek solutions arising as a result of conflicts of interest over the utilization of the ocean's marine resources off the U.S. coast in international waters. These conflicts have included: Competition for the same resources, many of which have been traditionally utilized by U.S. coastal fishermen; preemption by the large, mobile Soviet fleets of fishing grounds usually fished by U.S. fishermen; gear conflicts between mobile Soviet trawl gear and U.S. fixed gear (such as crab and lobster pots), resulting in some cases in severe economic losses to U.S. fishermen. Of paramount concern to the United States has been the rapid expansion of Soviet fishing operations off both coasts of the United States, the severe stress placed on U.S. coastal resources, in many cases leading to over-fishing, and the tactics employed by the Soviet and other foreign fleets of "pulse-fishing" that is the practice of concentrating on one or more species and after having fished those species to low levels, of targeting on other more abundant species and continuing to repeat this cycle. An illustrative example is the Northwest Atlantic fisheries for haddock, red and silver hake, herring and mackerel. The Soviets initially targeted on the haddock and red and silver hake, then as those resources were depleted or fished to very low levels, switched to herring and thence targeted on mackerel. All of these species have been badly overfished and the fisheries for these species are now being strictly regulated to prevent further depletion and to help rebuild the stocks.

The conflicts and problems described above should clearly not be attributed or blamed solely only to the activities of the Soviet fleet; they represent the cumulative problems caused by the rapid expansion of fishing operations off the U.S. coast conducted by many countries, totaling about 20 at the present time, and the inability of those countries to agree to take meaningful conservation measures rapidly, at least until fairly recently, until it was too late in some cases, and almost too late in many others.

The massive foreign operations off the U.S. coast began in the 1960's and reflected part of the world expansion in fisheries in every ocean to increase food production and to expand trade. Japan and the Soviet Union have led this expansion and they still constitute today the two nations with the largest number of fishing vessels off the U.S. coast. It is only natural for the United States to have focused its primary attention on seeking to control their fisheries, either through bilateral or multilateral arrangements.

¹The author is on the staff of the Department of State.

SOVIET FISHERIES OFF U.S. PACIFIC COAST

Soviet fishing off our Pacific coast began in 1959 with the initiation of fisheries for groundfish and king crab in the eastern Bering Sea. In the middle 1960's the Soviets expanded their operations southward and began a large fishery for hake off Washington and Oregon. In the process of this southward expansion, the Soviets depleted the Pacific Ocean perch resources off the Pacific Northwest. This finfish, a species much sought by U.S. fishermen and which at one time constituted an important fishery, continues to remain in depleted condition today despite conservation measures implemented by the United States to protect it. Hake on the other hand is a species which is not of any significant economic importance to the U.S. commercial fishery at the present time but does represent a resource of potential commercial importance to U.S. fishermen in the near future. On the other hand, hake, along with pollock in the eastern Bering Sea constitute the two most important commercial species for the Soviet Union.

PACIFIC COAST BILATERAL AGREEMENTS WITH THE SOVIET UNION

The problems associated with the Soviet fisheries in the 1960's have been difficult to resolve since they were occurring on the high seas (beyond 3 miles) and Soviet operations were being conducted under generally accepted principles related to freedom of fishing on the high seas and subject only to the general principles of conservation and obligations associated with such fishing of paying reasonable regard to the concerns of U.S. coastal fisheries. To insure the conservation of the fisheries resources off our Pacific coast and to protect the economic interests of U.S. fishermen, including access to grounds on the high seas which they have traditionally fished, and to minimize losses to U.S. fishermen caused by the damage to their fishing gear by foreign mobile gear, the United States negotiated three agreements with the Soviet Union in the 1960's.

They are the: (1) Agreement between the United States of America and the Union of Soviet Socialist Republics on fishing operations in the northeastern Pacific Ocean, commonly referred to as the "Kodiak Gear Agreement," signed December 14, 1964;

(2) Agreement between the United States of America and the Union of Soviet Socialist Republics of fisheries for King Crab, commonly referred to as the "Crab Agreement," signed February 5, 1965; and

(3) Agreement between the United States of America and the Union of Soviet Socialist Republics on fisheries in the northeastern part of the Pacific Ocean off the United States coast, once referred to as the "Contiguous Fishery Zone Agreement" and now usually described as the "Northeast Pacific Fisheries Agreement," signed February 13, 1967.

KODIAK GEAR AGREEMENT

In 1964 the first bilateral agreement with the Soviet Union was concluded relating to Soviet fishing operations near Kodiak Island in the Gulf of Alaska. The agreement was concluded to minimize gear losses and damages to U.S. king crab fixed pot gear caused

by Soviet vessels fishing with mobile trawl gear in the area. It was agreed to establish six localities off Kodiak Island on the high seas (beyond 3 miles) where the operation of Soviet trawl gear would not be conducted during periods when U.S. crab fishermen were actively engaged in fishing for king crab with pot gear.

This arrangement has worked well and has served to minimize gear losses to U.S. fishermen. The agreement has been renegotiated, modified and extended at 2-year intervals. In July 1975, it was made a part of the "Fisheries Agreement." Similar provisions are also included in the bilateral agreement which the United States has concluded with Japan and Poland.

KING CRAB AGREEMENT

In early 1965, the United States negotiated a bilateral agreement with the Soviet Union relating to their king crab fisheries in the eastern Bering Sea. Earlier, in 1964, the United States had negotiated a king crab agreement with Japan.

The Convention on the Continental Shelf adopted at the 1958 Geneva Conference on the Law of the Sea defines the living resources on the continental shelf over which the adjacent coastal states have exclusive sovereign rights of exploitation. On the basis of this Convention, the United States initially claimed the king crab (later in 1968 the tanner crab also) as constituting a continental shelf resource. The Soviet Union also claims the king and tanner crabs to constitute a continental shelf resource. Japan does not and claims the crabs to be high seas resources.

Following the general international practice of giving due consideration to the existence of established fisheries whose sudden termination would cause economic distress, the United States agreed to permit the continuation of the Japanese and Soviet fisheries for king crab but under U.S. control. The agreement with Japan notes the difference in legal views between the United States and Japan but sets aside this issue without prejudice to their respective legal positions. Also taken into account at this time was the fact that American fishermen were not able to fully utilize the king crab in the eastern Bering Sea.

The bilateral agreements with Japan and the Soviet Union established catch and size limitations and prohibited the taking of young crabs and female crabs. Provisions for the collection and exchange of scientific data so that the resource could be carefully monitored were also included.

Since the initial signing of the crab agreements (the tanner crab was included in the quota negotiations in 1971), the United States has drastically reduced the catch quotas of both countries in succeeding negotiations. These reductions were negotiated since the resource was being overfished. In addition, the use of tangle nets (gill nets weighted to fish on the sea bottom) by the foreign fleets was phased out and eventually prohibited for conservation reasons. Tangle nets tend to indiscriminately catch crabs of all sizes, sexes and in soft-shelled condition and were a contributing cause to fishery-associated mortality. Only the use of pots which are nondestructive to the resource is now authorized.

Within a decade, the king crab fishery in the eastern Bering Sea which was a "monopoly" of the Soviet Union and Japan has become a completely American-operated fishery. In 1964, when the fishery was unregulated, Japan had caught 5.9 million crabs (67 percent) of the total all-nation catch of 8.8 million crabs, the Soviet Union 2.8 million (32 percent) and the United States 123,000 crabs (1 percent). A decade later, in 1974 the ratio of U.S. catch vs. foreign catch was completely reversed, with U.S. fishermen harvesting 8.6 million crabs (95 percent) of the total catch. This resource is in good condition today.

The Soviet Union and Japan have been allotted small king crab catch quotas for the 1975 and 1976 seasons but they did not engage in the king crab fisheries in 1975 since the quotas do not support a viable economic operation. They are also not expected to fish for king crabs in 1976. In fact, the Soviet Union has not engaged in the crab fisheries for either the king or tanner crabs in the eastern Bering Sea since 1972 when the use of tangle nets was prohibited. The only foreign fishery presently prosecuted by a foreign country for U.S. continental shelf resources is that of Japan for tanner crab. It should be noted that this resource is very large and in excellent condition.

NORTHEAST PACIFIC FISHERIES AGREEMENT

In 1966, the United States established a contiguous fisheries zone extending 9 miles beyond the 3-mile territorial sea, within which zone the United States has the same rights over fisheries as in the territorial sea (Public Law 89-659). Foreign vessels which were able to fish freely to 3 miles off the U.S. coast prior to the enactment of this law were prohibited from fishing within the contiguous fisheries zone except as may be provided by international agreement. Accordingly, the United States began to negotiate bilateral agreements with those countries fishing off the U.S. coast, namely Japan and the Soviet Union, regarding fishing in the zone. In the course of these negotiations, the United States sought to establish areas on the high seas beyond the 9-mile fisheries zone where U.S. fishermen could fish without hindrance from the activities of foreign fishermen. Since such arrangements involved concessions from rights under international law, the United States agreed in turn to permit the continuation of foreign fishing in certain limited areas in the 9-mile zone which had the least impact on the U.S. fisheries. In addition, loading and cargo transfer activities were permitted in a number of localities within the contiguous fisheries zone.

The first Pacific Coast bilateral agreement with the Soviet Union relating to the newly-established 9-mile zone was negotiated in February 1967. It provided for closed areas to be established on the high seas so as to provide opportunities for U.S. fishermen to fish unmolested from the activities of Soviet trawling activities, permitted Soviet fishermen to conduct fishing and loading operations in certain localities in the U.S. fisheries zone and provided for cooperative scientific studies on species of mutual concern.

This agreement, along with the Kodiak Gear Agreement and the Crab Agreement, has been renegotiated every 1 or 2 years. In each succeeding negotiation, the United States has attempted to modify, improve, and strengthen the conservation measures for all stocks in the light of experiences and scientific information amassed in the previous years, as well as to provide increased protection for and

access to resources of special interest to U.S. fishermen, such as halibut, crab, shrimp, and Pacific ocean perch.

Catch quotas have also been allocated to the Soviets and other countries fishing in the area in an attempt to control overfishing. The United States has been successful in obtaining significant control over the Soviet Pacific fisheries during negotiations held in Washington, D.C. in July 1975 (see summary of negotiations—Fig. 1), but many problems remain. These problems shall be discussed later.

SOVIET FISHERIES IN THE NORTHWEST ATLANTIC

At about the same time that the Soviets began to expand their fishing operations in the Northeastern Pacific, in the early 1960's, they also began to fish in waters adjacent to the U.S. coast in the Northwest Atlantic. In 1961, the Soviets started fishing on Georges Bank, a ground which has been traditionally fished by New England fishermen for species such as cod and haddock. The rapid growth of the Soviet fisheries in the ensuing decade has been remarkable and, unfortunately, devastating to the U.S. fisheries. Their uncontrolled growth, combined with the entry into the fisheries off the U.S. coast of a multitude of other countries has caused a crisis in the Northwest Atlantic fisheries in terms of overfishing and severe economic dislocations for U.S. coastal fishermen. Many resources, once plentiful and which were almost exclusively harvested by U.S. fishermen for decades, such as cod, haddock, and herring, have been depleted as a result of foreign fishing.

Of the 17 nations fishing off the U.S. Atlantic coast, the fishing fleet of the Soviet Union is by far the largest, followed by Poland and East Germany. The magnitude of the foreign fishing operations can readily be seen by the sightings of foreign vessels made in 1974 by the U.S. Coast Guard in the area known as Sub-Area 5 of the International Commission for the Northwest Atlantic Fisheries (ICNAF). (See table 1 below.)

TABLE 1.—*Foreign fishing and fishery support vessels sighted in the Northwest Atlantic off the U.S. coast (subarea 3 of ICNAF) during 1974.*

Country	Type of vessel			Total
	Stern	Medium	Support	
Soviet Union	484	362	131	977
Poland	133	48	24	205
East Germany	68	79	13	160
Bulgaria	13		2	15
Romania	14			14
Cuba				
Total, Eastern Europe	712	489	170	1,371
Federal Republic of Germany	41		6	47
Spain	74	93		167
Norway				
Iceland				
Greece	1			1
Japan	52	23	1	76
Israel				
Irish	2			2
French	5		1	6
British	6			6
Italian	20	1		21
Total, other	201	117	8	326
Grand total	913	606	178	1,697

Figures are the sum of monthly sightings including duplicate sightings.

INTERNATIONAL COMMISSION FOR THE NORTHWEST ATLANTIC FISHERIES (ICNAF)

ICNAF was formally established in 1949. The United States has been a member since its founding, the Soviet Union since 1958. Commission membership presently totals 17, with Cuba being the newest member.

The Commission has the responsibility of investigating, protecting, and conserving the fisheries of the Northwest Atlantic Ocean and to make such recommendations as are necessary to maintain the fisheries at the level of maximum sustainable yield.

The Commission has been quite successful in the past several years in obtaining agreement among its members to sharply reduce their catches to protect declining stocks. However, these reductions have only been achieved after difficult negotiations, with the United States firmly insisting that the Commission make the difficult decisions necessary to protect declining stocks and going so far (in 1972) of threatening to withdraw from ICNAF if it failed to do so. Because of the complexity of the existing arrangements due to the large mix of species involved and the multitude (17) of nations engaged in the fisheries, the Commission has not been able to resolve the issues posed to it at each annual meeting and has had to schedule special meetings every year.

The most recent special meeting of the Commission was convened in Montreal in September 1975. There the United States was able to obtain a sharp reduction in the 1976 overall catch quota for the area off the U.S. coast which would allow a rapid recovery of the depleted biomass. The Commission set the 1976 level of catch (including squids) at 650,000 metric tons, a reduction of 23 percent from the 1975 quota. According to U.S. fisheries scientists, there is a high probability that at this reduced level of fishing the total resource should recover within 7 years.

The Commission, in addition, agreed to close a large area off Georges Bank to bottom trawling throughout the year to reduce the by-catches of the seriously depleted yellowtail and haddock stocks of special concern to the U.S. fisheries. The Commission, however, was not able to agree on the implementation of an improved enforcement system. The establishment of such a system is most necessary to ensure that the vessels of all the member countries are conducting their fishing operations in full compliance with the Commission's regulations. Unfortunately, this has not been the case in the past.

Since the Soviet Union has the largest fleet operating in the Convention area, the sharp reductions in catches, as well as the imposition of other restrictions, has naturally affected the Soviet fisheries the most.

MIDDLE ATLANTIC BILATERAL AGREEMENT

In the middle 1960's, the foreign fleets, primarily the Soviet Union's, which had mainly operated off the Canadian coast and off New England (Sub-Area 5 in ICNAF Convention waters) began to expand their operations southward to the middle Atlantic Ocean which is outside the jurisdictional limits of ICNAF as far as regulatory measures are concerned. The intensive southward expansion made it desirable

from the U.S. point of view to seek arrangements with the Soviets to protect the traditional U.S. fisheries in the area.

In November 1967, the United States negotiated a 1-year agreement with the Soviet Union which provided for the establishment of a 3,000-square-mile "no-fishing zone" straddling the 50-100 fathom curve 50 miles offshore extending for about 200 miles from off Virginia to Long Island. The "no-fishing zone" (nicknamed the "banana zone" due to its configuration) was designed to protect hake, scup and flounders, species of importance to U.S. fishermen, which aggregated in this area during the winter prior to migrating inshore to spawn in the spring. In return, the Soviets were permitted to fish as well as to conduct loading and transfer operations in the U.S. 9-mile fisheries zone in several small localities.

The agreement subsequently has been modified and expanded in later negotiations to provide protection to additional species of interest to U.S. fishermen, such as menhaden, black sea bass and sea herring. In return, the Soviets were permitted to make port calls. The current agreement, signed at Washington, February 26, 1975, allows the entry of not more than four Soviet fishing, fishery research, and fishery support vessels each month into each of the ports of Baltimore, Philadelphia, New York, and Boston. This agreement extends to February 29, 1976, or until such time that a new agreement is negotiated, whichever comes earlier.

U.S.-U.S.S.R. CLAIMS BOARD

Since the appearance of foreign fishing vessels off the U.S. coast, there have been numerous reported cases of gear conflicts involving foreign mobile (trawl) gear and U.S. fixed gear (longline gear employed in the Pacific halibut fishery, pots used in the Pacific crab and blackcod fisheries, and pots used in the Atlantic coast lobster fisheries). As described earlier, the occurrence of serious gear conflicts between U.S. and Soviet fishermen immediately adjacent to Kodiak Island resulted in an agreement being concluded in 1964 to minimize these conflicts.

More recently, the expansion of the U.S. offshore lobster fisheries, beginning in the 1970's, and the development of a new pot fishery for blackcod on the Pacific coast, also in the 1970's, have resulted in an increase in conflicts between foreign mobile gear and U.S. fixed gear. Recent agreements negotiated with the Soviet Union and other foreign countries include provisions establishing areas where foreign fishing vessels are not permitted to trawl for certain periods (Pacific Coast) and for the daily dissemination of advisories to the foreign fleets regarding areas of concentration of U.S. pot gear (Atlantic lobster fishery) so that foreign vessels can take precautionary measures to avoid conflicts when fishing in the general area.

Despite these arrangement, conflicts still occur. A most serious incident occurred in January 1975, when Soviet vessels trawled through an area of heavy concentration of U.S. lobster gear, causing severe losses to U.S. vessels from Massachusetts and Rhode Island.

Losses suffered by individual U.S. vessels involve not only loss of gear but also loss of valuable fishing time and potential catch. Often-times, U.S. fishermen are unable to replace their gear immediately

and go out fishing again. They have reported losses totaling over \$100,000 in some cases.

In an attempt to alleviate the economic hardships incurred by U.S. fishermen, the United States negotiated an agreement in February 1973 in Moscow establishing a Claims Board to consider claims resulting from damage to fishing vessels or gear which are brought to the attention of the Board by a national of one country against the national of another country. The Board, after conducting a full, detailed inquiry into the facts of a case, is empowered to make recommendations on payment of compensation. As of January 1, 1976, a total of 246 incidents occurring since 1971 has been reported to the Board; 94 involved Soviet fishing vessels. The Board has examined a total of 68 incidents (57 of which were claims) and has settled 20 claims involving Soviet vessels, ruling favorably for U.S. fishermen in 15 cases (settlement totaling \$100,013) and 5 unfavorably.

COOPERATION IN FISHERIES RESEARCH

For both the Northwest Atlantic and Northeast Pacific cooperation in fisheries research grew out of bilateral arrangements reached with the Soviet Union in the mid-1960's. Over the years, cooperation in research has included:

- a. Meetings of scientists to discuss status of stocks of mutual interest, research techniques and results of national research.
- b. Annual exchange of biological data and catch statistics.
- c. Participation of scientists of both countries in research cruises.
- d. Develop field programs and carry out joint operations of research vessels of both countries.
- e. Exchange of samples for comparative evaluation.
- f. Limited sampling of Soviet commercial catches by U.S. scientists.

The above activities over approximately a 10-year span has provided U.S. scientists with valuable insight into Soviet research activities and, of course, opened new lines of communication with their counterparts in the Soviet Union.

When one looks at the more tangible benefits from cooperative research, it is apparent that there has been a different degree of progress between the Pacific and North Atlantic. As seen by U.S. scientists, the cooperative trawl surveys have resulted in the development of a more comprehensive and accurate data base on the fisheries and fish populations of the Northeast Atlantic. Conversely, in the North Pacific only a few joint field activities have been successful. Other operations planned and scheduled, such as hake trawl surveys off Washington and Oregon and groundfish trawl surveys in the Bering Sea, have failed to take place or have had to be substantially modified with the resultant loss of desired coverage.

PROBLEMS REMAINING AHEAD

Despite the success which the United States has achieved recently in negotiating a more effective conservation arrangement with the Soviet Union, there continues to remain many resource problems of concern to the United States. These problems obviously cannot be solved only in context of our bilateral relations with the Soviet Union since the Soviet Union is but one of many countries fishing off the

U.S. coast. One of the major problems includes continued overfishing of certain species, such as hake and pollock.

Hake, which is the primary target species of the Soviet fleet operating off the coasts of Washington, Oregon, and California, continues to be overfished. The maximum sustainable yield of this species is currently estimated by U.S. scientists to be 150,000 metric tons, but the all-nation harvest in 1976 is expected to total nearly 200,000 metric tons. The Soviet Union's quota alone for 1976 is 150,000 tons. Thus, it will be necessary that the Soviet Union's quota be reduced to a much lower level. Every effort was made to do this in negotiations held in July 1975 but the Soviet scientists claimed that the resource was in much better shape than claimed by U.S. scientists and it was finally agreed between the two parties that the Soviet quota would again be set at 150,000 tons. However, in other areas of concern to the U.S. fisheries, the Soviet Union did make significant concessions to the United States.

Pollock in the eastern Bering Sea is another species still being overfished. The all-nation catch of this species is estimated at over 1.3 million metric tons, whereas the maximum sustainable yield is calculated to be in the range of 800,000–850,000 tons. Japan by far has the largest quota share of this resource (85 percent or 1.1 million tons), followed by the Soviet Union (15 percent or 210,000 tons). Their catch quotas had both been reduced by nearly 30 percent to reduce the fishing pressure on this resource but the overfishing problem still remains. The United States will need to again make a major effort at negotiations scheduled in 1976 with both countries to seek their recognition of the serious condition of this resource and to reduce their catches.

The problem of overfishing is compounded by the problem of high incidental catches (by-catches) of certain depleted species, that is the involuntary catching of species while fishing for other species. In this respect, ICNAF has taken a major step forward in reducing the by-catches of the depleted haddock and yellowtail flounder (these two species were overfished by the Soviets) by prohibiting bottom trawling on Georges Bank.

On the Pacific Coast, the halibut resource has continued to decline despite the energetic efforts of the International Pacific Halibut Commission to protect it. The decline is attributed to the large incidental catches of young halibut in the eastern Bering Sea made by the foreign fleets of Japan and Soviet Union. Both countries, after protracted and difficult negotiations, agreed to the establishment of extensive closed areas to trawling during the winter and spring months when young halibut congregate in the eastern Bering Sea. Their great reluctance in readily accepting the U.S.-proposed measures stems from their view (with which the United States disagrees) that their trawl fisheries have minimal adverse impact on the halibut resource and from their concern that those measures would tend to deny their vessels of the opportunity of fishing for other species and would significantly increase their fleet operational costs. Observations made by the United States have shown that the foreign fleets have generally been able to adjust their operations despite the imposition of such measures and have been able to operate with relative efficiency and have not significantly impaired their ability to catch species they were seeking.

The collection and submission of accurate catch statistics are critical in the conservation and management of fisheries. The data form the basis for assessing, evaluating, and monitoring the conditions of stocks fished by the international fleet so that reasonable harvest levels can be set and the continued high productivity of the ocean's resources maintained.

The requirement of collecting statistics and in promoting research is included in all of the agreements which the United States has concluded with nations fishing off its coasts. Unfortunately, this requirement has not been fully met in the past. On a number of occasions, the United States has detected inaccuracies in the data submitted by certain countries. These occasions have led to serious misunderstandings, for example the Soviet Union and Japan, regarding the accuracy of their data. We have been provided assurances by the foreign governments that such inaccuracies will not be permitted to occur in the future. Such assurances, plus a recognized need for an adequate monitoring and enforcement system, will in the long run alleviate the present problems of data collection.

At this point in time, it is manifest that bilateral relationships that currently exist with the Soviet Union and indeed with other countries who fish off U.S. coasts will necessarily have to be responsive to whatever outcome there might be in the Law of the Sea Conference. In this light, the present period can be considered as one in which change rather than static situations dictate. Unquestionably, the bilateral fisheries relations and the history behind them will have an impact on whatever regime evolves from the LOS Conference.

FIGURE 1.—Summary of U.S.-U.S.S.R. Fishery Negotiations

<u>TITLE OF AGREEMENT</u>	<u>PLACE</u>	<u>DATE</u>	<u>TIAS NO.</u>
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fisheries Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Washington, D.C.	February 26, 1975	TIAS 8021
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fisheries Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Copenhagen	June 21, 1973	TIAS 7664
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Moscow	February 21, 1973	TIAS 7574
Protocol to the Agreement of December 11, 1970, Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Washington, D.C.	February 2, 1971	TIAS 7043
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Washington, D.C.	December 11, 1970	TIAS 7009
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.	Washington, D.C.	December 13, 1968	TIAS 6603

TITLE OF AGREEMENT

PLACE

DATE

TIAS NO.

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean. Extending the Agreement of November 25, 1967.

Moscow

October 9 and
December 3, 1968

TIAS 6602

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Fishery Problems on the High Seas in the Western Areas of the Middle Atlantic Ocean.

Moscow

November 25, 1967

TIAS 6377

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fishing Operations in the Northeastern Pacific Ocean.

Moscow

February 21, 1973

TIAS 7572

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fishing Operations in the Northeastern Pacific Ocean.

Washington, D.C.

February 12, 1971

TIAS 7045

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fishing Operations in the Northeastern Pacific Ocean.

Washington, D.C.

January 31, 1969

TIAS 6637

Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fishing Operations in the Northeastern Pacific Ocean.

Washington, D.C.

December 14, 1964

TIAS 5703

<u>TITLE OF AGREEMENT</u>	<u>PLACE</u>	<u>DATE</u>	<u>TIAS NO.</u>
Agreement Between the United States of America and the Union of Soviet Socialist Republics Regarding Fisheries in the Northeastern Pacific Ocean.	Washington, D.C.	July 18, 1975	(No TIAS number assigned as of 12/31/75)
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries. Extending the Agreements of February 21, 1973 and of June 21, 1973.	Washington, D.C.	December 31, 1974	TIAS 7981
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast.	Moscow	February 21, 1973	TIAS 7573
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast.	Washington, D.C.	February 12, 1971	TIAS 7046
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast. Amending and Extending the Agreement of February 13, 1967, as Amended and Extended.	Washington, D.C.	January 31, 1969	TIAS 6636
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast. Extending the Agreement of February 13, 1967.	Washington, D.C.	December 18, 1967	TIAS 6409

<u>TITLE OF AGREEMENT</u>	<u>PLACE</u>	<u>DATE</u>	<u>TIAS NO.</u>
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast. Extending the Agreement of February 13, 1967.	Washington, D.C.	December 18, 1967	TIAS 6409
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast. Amending the Agreement of February 13, 1967, as Extended.	Moscow	February 27 and April 9, 1968	TIAS 6474
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries in the Northeastern Part of the Pacific Ocean off the United States Coast.	Washington, D.C.	February 13, 1967	TIAS 6218
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fishing for King and Tanner Crab.	Washington, D.C.	July 18, 1975	(No TIAS number assigned as of 12/31/75)
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries for King and Tanner Crab.	Moscow	February 21, 1973	TIAS 7571
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries for King and Tanner Crab.	Washington, D.C.	February 12, 1971	TIAS 7044

<u>TITLE OF AGREEMENT</u>	<u>PLACE</u>	<u>DATE</u>	<u>TIAS NO.</u>
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries for King Crab. Amending and Extending the Agreement of February 5, 1965, as Amended and Extended.	Washington, D.C.	January 31, 1969	TIAS 6635
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries for King Crab. Extending the Agreement of February 5, 1965.	Washington, D.C.	February 13, 1967	TIAS 6217
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries for King Crab.	Washington, D.C.	February 5, 1965	TIAS 5752
Agreement Between the United States of America and the Union of Soviet Socialist Republics on Fisheries on Consideration of Claims Resulting from Damage to Fishing Vessels or Gear and Measures to Prevent Fishing Conflicts. Amending the Agreement of February 21, 1973, as Amended.	Washington, D.C.	February 26, 1975	TIAS 8022
Protocol Between the United States of America and the Union of Soviet Socialist Republics on Fisheries on Consideration of Claims Resulting from Damage to Fishing Vessels or Gear and Measures to Prevent Fishing Conflicts. Amending Annex II to the Agreement of February 21, 1973.	Copenhagen	June 21, 1973	TIAS 7663

TITLE OF AGREEMENTPLACEDATETIAS NO.

Agreement and Annex and Protocol, Between the United States of America and the Union of Soviet Socialist Republics on Fisheries on Consideration of Claims Resulting from Damage to Fishing Vessels or Gear and Measures to Prevent Fishing Conflicts.

Moscow

February 21, 1973

TIAS 7575

Agreement Between the United States of America and Japan on Fisheries for King Crab.

Washington, D.C.

November 25, 1964

TIAS 3688

Agreements Between the United States of America and Japan on Fisheries in Certain Fisheries off the United States Coast, Salmon Fisheries, King and Tanner Crab.

Tokyo

December 24, 1974

TIAS 7986

SOVIET OFFSHORE OIL AND GAS

(By Joseph P. Riva, Jr.)¹

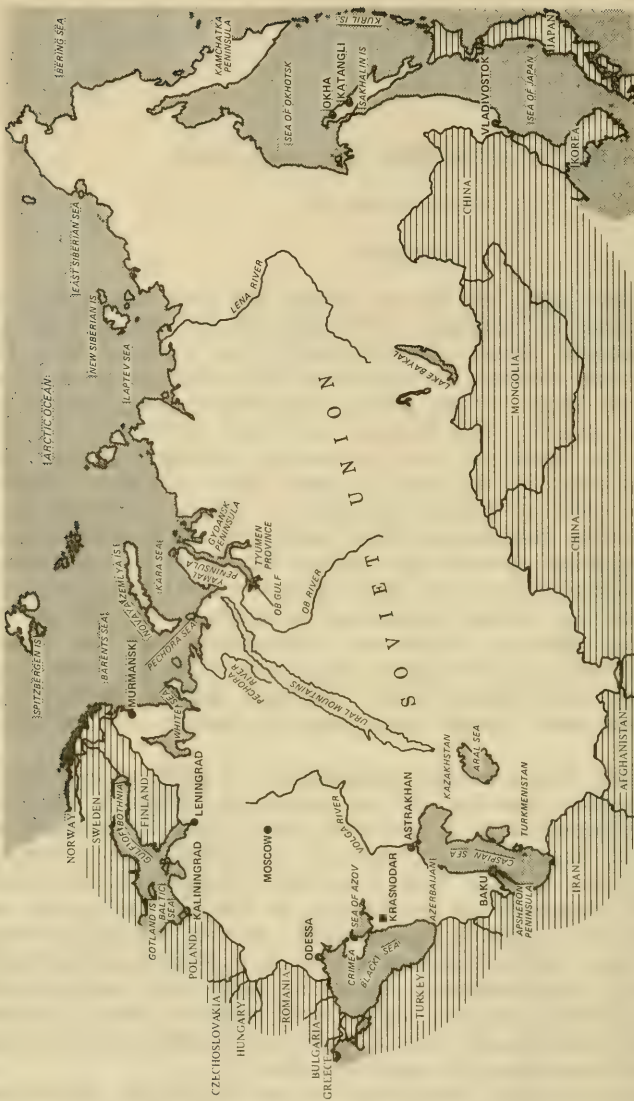
SUMMARY

For the past few years the Soviet Union has been attempting to revive its long neglected offshore petroleum industry. In spite of apparently vast reserves, Soviet offshore production slumped to a 10-year low in 1974 and has been falling since 1970. Offshore gas production, however, has made strong gains which have compensated for falling crude oil output. The Soviets feel that 1975 will be the turn-about year for crude oil and condensate production from the Caspian Sea and that in the next decade there will be a record expansion of the offshore petroleum industry. There is already considerable evidence to substantiate this projection. New development technology is beginning to reach the Caspian Sea in increasing quantities and more investment, material, and manpower has been authorized than ever before for subsea petroleum operations on all of the prospective Soviet shelves. There are indications that the Soviet Government has become increasingly impatient with the slow pace of domestic design and construction of modern mobile offshore rigs and may purchase more foreign units using its limited hard currency supply.

The Soviets, with future energy requirements as great as any major industrial nation, are planning for an increasing effort in offshore hydrocarbon development as a part of a total effort to increase oil production and to economize on fuel use which will receive special attention in the next 5 Year Plan. This shift in policy is the result of the failure of domestic oil production to increase as rapidly as planned; current oil reserves, particularly in the Arctic, proving technologically more difficult and expensive to exploit than expected; and domestic and allied demand expanding faster than anticipated. By 1980 Soviet domestic requirements could match output, at which time the Soviet Union would have to become an importer of crude oil should it wish to continue to supply its allies.

The Soviet Union appears determined to increase crude production to maintain its energy independence. It is raising its oil production goals beyond those which some Western experts have already judged to be overambitions. As a part of this program, offshore oil exploitation will be greatly expanded, but the realization of the very high quotas set would seem to depend in part upon the purchase and utilization of additional foreign technology.

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Map of Soviet Union Showing Locations of Soviet Offshore Oil and Gas Activities.

THE GEOLOGY AND THE OIL AND GAS PROSPECTS OF THE SOVIET CONTINENTAL SHELF

As may be seen from the following survey, Soviet hydrocarbon prospects, although not all proven, are substantial. The Soviet Union has a coastline approximately 37,000 kilometers long with a continental shelf which covers an area of about 6 million square kilometers to a depth of 200 meters. The shelf includes different geologic elements ranging from ancient platforms to structural and sedimentary basins and folded belts. It is divided into three large regions: the continental shelves of the remnant seas in southern Russia (such as the Caspian Sea, the Black Sea, and the Sea of Azov) which are connected with the Mediterranean geosynclinal zone; the continental shelf of the Arctic seas and the Arctic basin; and the continental shelf of the Pacific Far East mobile zone. (see map.)

Geological knowledge of these shelf areas is rather scanty except for the Caspian Sea shelves which are well known. The Russian continental shelves are expected by Soviet geologists to be an important source of new oil and gas production. Oil and gas potential, however, differs in different parts of the shelves, but in the Caspian Sea prospects for large hydrocarbon reserves are certain.

SOUTHERN U.S.S.R.

In the southern region of the Soviet Union there are large, geologically active, crustal depressions which contain great thicknesses of sedimentary rock (20 kilometers in the Caspian Sea area and 10 to 12 kilometers in the Black Sea). The presence of these thick sedimentary rock sections and the discovery of large accumulations of oil and gas both offshore and under the adjoining lands indicate excellent hydrocarbon potential for the continental shelves of southern U.S.S.R. and especially for the Caspian Sea shelf. The Caspian Sea is at present undergoing extensive offshore drilling and exploitation. It is the world's largest interior body of water, with an area of 430,000 square kilometers. Approximately 60 percent of this area is 200 meters or less in depth.

Geologically, the Caspian depression is composed of diverse structural elements. In the northern Caspian, a salt dome area is developed on the Russian Precambrian platform (see Figure 1 for geologic time scale). Thick upper Paleozoic and Mesozoic rocks overlie the platform. On land this stratigraphic section is productive of oil and gas and gives every indication of being productive beneath the Caspian Sea. Even the strata that are older than the salt layers (pre-Permian) are expected to yield oil and gas.²

The northern and middle parts of the Caspian depression are structurally complex with a cover of Mesozoic and Cenozoic sediments. The Jurassic and Cretaceous sedimentary rocks of this complex structural element offer the greatest promise of oil and gas.³

The most favorable section of the Caspian Sea for hydrocarbons, however, is the Apsheron-Balkhan zone, a sill that separates the

² Eremenko, N. A., Malovitskiy, Ya. P., Gramberg, I. S., and Lebedev, L. I. Geologic Structure and Oil and Gas Prospects of the U.S.S.R. Continental Shelf. American Association of Petroleum Geologists Bulletin, v. 57, n. 2, February 1973, p. 239.

³ Ibid.

Tersk-Caspian basin from the south Caspian depression. This zone is made up of a chain of folded geological structures associated with the rich Apsheron and West Turkmen hydrocarbon provinces, including such large offshore fields as Neftianyye Kamni, Zhiloy Island, Zhdanov Bank, Cheleken, and others. The oil and gas in this province are in middle Pliocene deposits.⁴

The south Caspian basin is a deep depression containing more than 20 kilometers of Mesozoic and Pliocene to Quaternary deposits. It contains the Baku Archipelago fold belt on the west in which large oil fields have been discovered and which is a very promising area for further exploration. The Turkmen shelf on the east of the south Caspian basin is also considered a most favorable prospect. It contains Pliocene to Quaternary sedimentary deposits folded into broad gentle uplifts. In this stratigraphic section, middle Pliocene sediments are considered to be the most prospective.⁵

⁴ Ibid.

⁵ Ibid., p. 240.

FIGURE 1.
[Geologic time scale]

Era, period, and epoch	Duration in millions of years (approximate)	Millions of years ago (approximate)
Cenozoic:		
Quaternary:		
Recent	(¹)	(¹)
Pleistocene	2.5	2.5
Tertiary:		
Pliocene	4.5	7.0
Miocene	19.0	26.0
Oligocene	12.0	38.0
Eocene	16.0	54.0
Paleocene	11.0	65.0
Mesozoic:		
Cretaceous	71.0	136.0
Jurassic	54.0	190.0
Triassic	35.0	225.0
Paleozoic:		
Permian	55.0	280.0
Pennsylvanian	45.0	325.0
Mississippian	20.0	345.0
Devonian	50.0	395.0
Silurian	35.0	430.0
Ordovician	70.0	500.0
Cambrian	70.0	570.0
Precambrian	4,030.0	4,600.0

¹ Approximately last 5,000 years.

Note: Formation of the Earth's crust about 4,600,000,000 years ago.

Source: Adapted from McAlester, A. Lee. "The History of Life." Prentice-Hall, Inc., 1968, p. 152.

NOTE: The rocks of the Earth's crust are divided into four major eras of time as shown in the above scale. The three younger eras are further divided into periods and epochs. The Precambrian, the longest and oldest era, witnessed the beginning of life and the evolution of simple plants and animals. The Paleozoic Era was dominated by the invertebrate animals and fishes, the Mesozoic by reptiles (dinosaurs), and the Cenozoic by mammals. Commercial oil and gas deposits can occur in rocks of Paleozoic, Mesozoic, or Cenozoic age. The best prospects vary in age from region to region depending upon local geologic conditions. In general, Mesozoic age rocks (Triassic, Jurassic, and Cretaceous) are considered to have the best oil and gas potential on the Soviet continental shelves, with Paleozoic age rocks (Cambrian, Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, and Permian) considered to be next in importance.

The Black Sea and the Sea of Azov are part of a major intracontinental basin. The Black Sea depression contains sedimentary rocks up to 15 kilometers thick. The Mesozoic and Cenozoic deposits in the Karkinit deep of the Black Sea basin offer the best hydrocarbon potential. They vary from 5 to 7 kilometers in thickness. Exploration will be concentrated along a series of local structures in the Cretaceous and older Tertiary rocks.⁶

In the Sea of Azov, the Azov-Berezan bank on the mid-Azov uplift is the best oil and gas prospect. The rocks in this area are of Cretaceous and early Cenozoic age.

NORTHWESTERN AND ARCTIC U.S.S.R.

More than 70 percent of the Soviet shelf area fronts the Arctic Ocean. Much of it is poorly explored geologically, but sufficient data are available to show that the Arctic shelves are associated largely with ancient Precambrian platforms. Mesozoic and Cenozoic subsidence and sedimentation on the Arctic shelves have enhanced oil and gas potential and local tectonic characteristics often favor large hydrocarbon accumulations, especially in the gently dipping platform sedimentary rocks that extend from the land onto the shelf. This potential is supported by the major discoveries in northern Siberia and in Alaska.

The Russian sector of the Baltic Sea contains the Baltic synclinal basin whose flanks dip moderately from the margins into the bowl-like depression. The rock section is predominately lower Paleozoic. Approximately 60 prospective oil and/or gas structures have been identified onshore and offshore. Oil shows are numerous and several oil fields have been discovered onshore. The increasing stratigraphic thickness offshore, with favorable structure, indicates that even larger subsea reserves could be present. Source beds, volume of reservoir rocks and the density of local structures appears to increase seaward.⁷

The Arctic Barents Sea, opening on the Arctic Ocean, is about 1,405,000 square kilometers in area. About one half of this expanse is deeper than 200 meters. The sea is underlain by fold belts of several ages, each of which is the basement of a younger rock cover. The Barents-Pechora synclinal basin of the Russian platform occupies a large part of the southern Barents Sea. Farther north is the North Barents synclinal basin which is a part of the Barents-Kara platform. In the Barents Sea, seismic surveys have determined the present of all the basic requirements for an oil and gas bearing complex.⁸ The principal hydrocarbon objectives are the Devonian rocks.

In the Pechora Sea, the southeastern part of the Barents Sea, extensions of anticlinal axes occur which have been traced from the northern part of the onshore Timan-Pechora oil and gas province. In the offshore zone, Mesozoic and Tertiary sediments total 12 to 15 kilometers in thickness. The white (Beloje) Sea to the west includes a portion of the Mezen basin, but much of the sea lies within the unproductive Baltic shield.

⁶ Ibid.

⁷ Ibid., pp. 240-241.

⁸ Eremenko, N. A., Ovanesov, G. P., and Semenov, V. V. Status of Oil and Gas Prospecting in U.S.S.R. in 1971. American Association of Petroleum Geologists Bulletin, V. 56, no. 9, September 1972, p. 1716.

Farther east, beneath the Kara Sea, is an offshore continuation of the rich West Siberian basin. The largest oil and gas fields in the Soviet Union are in the West Siberian basin, including such giants as Urengoy and Samotlor. Of the 1,077 known structures in the West Siberian basin which may ultimately be tested, 250 have been drilled. Of these only 11 were dry, hydrocarbons being found in 239.⁹

Local tectonic events were prominent among the factors that determined the extent and relationships of the alternating permeable and impermeable Mesozoic to Cenozoic section of the Ob-Kara basin. Onshore the entire Mesozoic system from the Lower Jurassic to the Upper Cretaceous has been shown to contain prolific reservoirs of oil and gas. Offshore oil and gas is expected in correlative formations at depths of from one to three kilometers. Lithologic facies changes in the northern parts of the West Siberian platform indicate that a considerable increase in sandstone could occur in the offshore zone of the Kara Sea. The increase in sandstone coupled with vast uplifts at shallow depths suggests that large gas and gas-condensate accumulations could occur in the offshore region.¹⁰ The Kara platform to the northeast offers less promise than the Ob-Kara synclinal basin, however, local uplifts on the Kara platform could prove productive.

The Laptev Sea has a total area of about 650,000 square kilometers and at the edge of the continental slope its depth is 100 to 200 meters. In the west, it consists of the drowned margin of the West Siberian platform, but most of the Laptev shelf is a distinct tectonic unit—the Laptev block. The Laptev block is a complex unit made up for the most part of the Laptev uplift. The Laptev shelf consists of approximately five to six kilometers of Lower and Middle Paleozoic deposits, mostly carbonates, above a basement assumed to be Precambrian in age. A thin section, less than one kilometer, of terrigenous Upper Cretaceous to Cenozoic rocks overlies the Paleozoic section. The most favorable oil and gas prospects are in the Paleozoic rocks of the Khatanga depression and in the southern Laptev trough.¹¹

The East Siberian and the Chukchi Seas are shallow. The average depth of the East Siberian Sea is only 50 meters while the Chukchi (Chukotsk) Sea averages 80 meters in depth. The shelves are characterized by large folded structures. Oil and gas potential is considered good in the Novosibirsk synclinal basin and in the Rauchaun, South Wrangel, and North Wrangel depressions. The Upper Paleozoic, Mesozoic, and Cenozoic sedimentary deposits in these deep depressions are prospectively oil- and gas-bearing.¹² The hydrocarbon deposits in northern Alaska are in zones of subsidence of the Hyperborean platform, the same platform which apparently underlies the eastern and northern portion of the East Siberian and Chukchi Sea region.

PACIFIC FAR EAST MOBILE ZONE

In this region the Bering, Okhotsk, and Japan Seas are located in the zone of transition from continental platform to Pacific basin.

⁹ Meyerhoff, A. A. *Soviet Arctic Oil and Gas: A Second Middle East*. Professional Engineer, v. 45, July 1975, pp. 29–30.

¹⁰ Eremenko, N. A., Ovanesov, G. P., and Semenov, V. V., *op. cit.*, p. 1716.

¹¹ Eremenko, N. A., Malovitskiy, Ya. P., Gramberg, I. S., and Lebedev, L. I. *op. cit.*, p. 242.

¹² *Ibid.*

The continental crust is separated from the oceanic crust by geosynclinal deeps associated with island arcs.

The Bering Sea shelf adjoining the Soviet Union is folded into deep depressions that contain thick deposits of Mesozoic and Cenozoic sediments. The largest of these depressions, the Anadyr basin, is considered to have good offshore hydrocarbon potential, for gas and condensate deposits have been discovered in Cenozoic sandstones in onshore portions of the structure. There are other depressions in the Bering Sea shelf in which hydrocarbons also may be present. Another prospect is the offshore extension of the eastern Kamchatka basin where near-commercial oil has been discovered onshore in the same structural unit.¹³

Approximately half of the Sea of Okhotsk and the Japan Sea is considered prospective in Tertiary and also possibly in Cretaceous strata. Prospects are especially favorable on and adjacent to Sakhalin Island and in the western Kamchatka shelf. Large depressions are present containing 5 to 6 kilometers of sedimentary rock. Commercial oil and gas deposits have been discovered by onshore directional drilling into the Odoptu-Tossin uplift on the northern Sakhalin shelf and gas has been found in two onshore wells in the Aniva depression to the south.¹⁴

CONCLUSION

Approximately 75 percent of the extensive Soviet continental shelf has good oil and gas potential.¹⁵ The prospective areas are associated with such adjacent land features as platform basins and troughs, fore-deeps, and geosynclinal depressions. Mesozoic rocks are considered the prime hydrocarbon prospects with the older Paleozoic rocks secondary.

More than 70 percent of the prospective shelf area is in the Arctic, where deep depressions containing great thicknesses of sedimentary rocks are present on the shelves and are connected closely with proven oil and gas provinces onshore.¹⁶ These shelf areas, however, will require further study.

¹ Climate and geography, as well as geology, favor continued development of the Caspian region. In the Far East, the Sakhalin shelf and Anadyr basin should be of primary interest because of the discoveries already made there.

The U.S. Geological Survey estimates potential U.S.S.R. offshore gas reserves at 100 to 1,000 trillion cubic feet and potential U.S.S.R. offshore reserves at 100 to 1,000 billion barrels.¹⁷

CURRENT STATUS OF SOVIET OFFSHORE OIL AND GAS EXPLORATION AND PRODUCTION

A combination of increasing production from frontier areas of the U.S.S.R., declining output in the United States, and a world supply surplus moved the Soviet Union into the position of the world's leading

¹³ Ibid.

¹⁴ Ibid., pp. 242-243

¹⁵ Ibid., p. 243.

¹⁶ Ibid.

¹⁷ Frezon, Sherwood E., Summary of 1972 Oil and Gas Statistics for Onshore and Offshore Areas of 151 countries. Geological Survey Professional Paper 885, Washington D.C., 1974, p. 141.

crude oil producer in 1974. The continuing decline of U.S. production moved it to third place behind Saudi Arabia which still has the greatest developed production capability, but did not produce at capacity because of a surplus of oil in the West at the higher price levels. In 1974, the Soviet Union reported an average production of 9.08 million barrels per day of crude oil, 150,000 barrels per day of condensate, and 25.242 billion cubic feet per day of gas.¹⁸ Crude oil and condensate production was 7 percent above the 1973 level and gas production last year was 10.4 percent above that of 1973. Oil production matched the revised planned goal while the gas yield exceeded the planned target by about 1.5 percent.¹⁹

In the first half of 1975, Soviet oil output reached a record 9.74 million barrels per day with natural gas production reported at 27.3 billion cubic feet per day. The 1975 goal is an average of 9.93 million barrels per day of crude oil and 27.6 billion cubic feet per day of gas.²⁰

The Soviet Union has announced that the next 5 Year Plan (starting January 1, 1976) would include a major effort to increase oil production and to economize on fuel use.²¹

THE CASPIAN SEA

Baku, on the western shore of the Caspian Sea, is the site of the first oil production in the Soviet Union. Development was started there in the 19th Century and is still continuing. The first subsea Caspian oil was found in 1923 by shallow wells drilled in a filled-in bay off Baku. About two-thirds of the oil currently produced comes from offshore wells, the majority of which are located in a reef area known as Neftianye Kamni, a giant field located off the Apsheron Peninsula about 95 kilometers east of Baku. An entire town has been built over this area on more than 100 interconnecting platforms, linked with the mainland and to drilling rigs by a system of causeways some 250 kilometers long. Caspian Sea production reached a peak in 1970 of 258,000 barrels per day and declined to 236,000 barrels per day in 1972. In 1973 average production rose to 240,000 barrels per day of oil and gas condensate from 2,287 wells. The largest production increases were in the Baku Archipelago where 17 new oil and gas wells were added during the first half of 1973.²²

The U.S.S.R. produced only about 231,000 barrels per day of Caspian crude oil and condensate during 1974, however, and little change is expected this year. The Soviets plan to more than double offshore Caspian Sea oil output during the next 10 years. The target for 1980 is 360,000 barrels per day climbing to from 500,000 to 560,000 barrels per day by the end of 1985.²³

¹⁸ Rigassi, Danilo A. U.S.S.R. Becomes the World's Leading Oil Producer. *World Oil*, August 15, 1975, p. 121.

¹⁹ *Ibid.*

²⁰ Newsletter, *The Oil and Gas Journal*, August 4, 1975.

²¹ Soviets to Push Oil Production. *Journal of Commerce*, June 12, 1975.

²² King, Robert E., *Petroleum Exploration and Production in Europe in 1973*. American Association of Petroleum Geologists Bulletin, v. 58, No. 10, October 1974, p. 1991.

²³ Russia to Double Caspian Oil Flow by 1985. *The Oil and Gas Journal*, May 26, 1975, p. 140.

Russian offshore oil output since 1951 is shown in the following table:

Barrels per day	Year
68,460	1951
143,460	1960
228,580	1965
238,440	1966
247,880	1967
252,440	1968
255,000	1969
258,000	1970
250,000	1971
236,000	1972
240,000	1973
231,000	1974
231,000 (planned)	1975
360,000 (planned)	1980
500,000 to 560,000 (planned)	1985

Source: Adapted from Bakke, Donald R. Soviet Russia Hopes for Decade of Offshore Petroleum Expansion Rise Despite Skid in Subsea Oil Production. *Offshore*, June 20, 1975, p. 232.

The Neftianye Kamni field, which has over 1,000 wells, is by far the most prolific single field yet found in the Caspian Sea. It was discovered in 1949 and had an estimated initial crude reserve of more than 1.2 billion barrels. However, Neftianye Kamni output is fading in spite of continued development drilling. Its production has come mostly from Pliocene formations between 180 meters and 1,620 meters in depth. Neftianye Kami production, which was 140,000 barrels per day as recently as 1970 is now believed to have fallen to below 80,000 barrels per day.²⁴

The Caspian Sea currently has a total of 20 fields with the largest crude oil and condensate production, over 90,000 barrels per day, coming from the Baku Archipelago fields located south of Baku. Only one of the four fields found since 1967 on the Caspian Sea's eastern shelf, offshore from Turkmenistan, is in production, the others being shut in due to a lack of pipelines.

While Caspian offshore oil production is at a 10-year low, gas output continues to increase. It has climbed from less than 124 billion cubic feet in 1970 to about 265 billion cubic feet in 1974 and is expected to exceed 282 billion cubic feet in 1975. The target for 1985 is 424 billion cubic feet.²⁵ Caspian subsea gas production during the first quarter of 1975 was reported to have increased 15 percent over the same 1974 period, while oil output slumped further.

The projected growth in Caspian oil and gas production during the next decade is expected to partially result from the greatly increased use of mobile drilling rigs. At present the U.S.S.R. has only four mobile units, all jack-ups, and two of these are considered obsolete. The Soviet Union is believed to be drilling about 360,000 meters of hole annually in the Caspian. Of this, about 60 percent is development drilling and 40 percent exploratory drilling.²⁶ With

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

only four mobile rigs, more than 90 percent of the subsea wildcatting last year was still done from fixed platforms. The Soviets hope to use mobile rigs to drill over 30 percent of the Caspian's wildcats in 1980 and up to 60 percent of the wildcats in 1983. The 10-year goals set for Caspian production probably cannot be achieved by drilling most exploratory holes from fixed platforms as the expenditures on fixed platform construction is too high and the time required to erect these units is too great. As a result, the Soviets are expected to push construction of mobile rigs and also may well purchase more foreign built mobile rigs with some of the currency exchange earned from sales of oil and gas to the West.²⁷

The Soviets also plan an increase in directional drilling on the flanks of older Caspian fields such as Neftianye Kamni, along with deeper drilling in their central sectors and intensified secondary recovery efforts. A well is being drilled in Neftianye Kamni to reach Mesozoic formations at a target depth of 4,135 meters.

Equally important for increased production are plans to develop several very promising nearby geological structures such as 28th of April and Kaverochkin, to the east of Naftianye Kamni, and Shakhovo-More to southwest. The Soviets claim that geological interpretations of photographs taken by their orbiting satellites have revealed 67 geological structures in the Caspian Sea area that show promise for petroleum exploration. Ten of the structures photographed by the Salyut 2 orbiting satellite are on the Caspian's eastern shelf where wildcat drilling is being rapidly expanded.

The Baku Archipelago fields to the south of Baku now rank first in offshore Caspian crude oil and condensate production, exceeding 90,000 barrels per day early in 1975. Annual increases, however, continue to be small, rising less than 4,300 barrels per day in 1974, with a 5,200-barrel-per-day increase planned for 1975.²⁸ The Baku Archipelago fields now have over 100 producing wells; 26 of which were put into production during 1974. Twenty-eight wells were being drilled at the end of the year, and a total of about 30 are scheduled for activation in 1975.

The Bakhar field, located south of Azerbaijan's Apsheron Peninsula and about 40 kilometers east of Baku, is the Caspian's most prolific gas field. In early 1975, it had only 25 wells but accounted for almost half of the Caspian's total gas output. Bakhar gas and condensate production has more than quadrupled between 1970 and 1974. Soviet plans call for a 15 to 20 percent increase during 1975 following completion of a fifth pipeline to the Apsheron Peninsula. Hydrocarbons are found in seven zones, the average depth being about 5,000 meters. Last year all four wells that were planned to go deeper (to about 5,500 meters) had to be abandoned because of what was termed, "technical problems."²⁹

Only one new field discovery in the Caspian Sea was announced by the Soviets in 1974, an oil and gas discovery at Garasu in the

²⁷ Ibid.

²⁸ Bakke, Donald R. *Soviet Russia Hopes for Decade of Offshore Petroleum Expansion* Rise Despite Skid in Subsea Oil Production. *Offshore*, June 20, 1975, p. 235.

²⁹ Ibid.

Baku Archipelago about 60 kilometers south of Baku. The test flow on the discovery well, prolific by Caspian standards, was about 1,825 barrels of oil per day plus 10.6 million cubic feet of gas per day from a depth of 4,785 meters.³⁰ Garasu was the Soviet's 20th Caspian field and the fifth marine discovery made by the Russians in less than 12 months. The other 15 fields were found over a 50-year period which followed the initial offshore discovery in very shallow water near Baku in 1923. Two new pools were discovered in the Baku Archipelago in 1974, one a gas-condensate discovery at Bulla-More and the other an oil find at Duvannyi-More, both to the north of Garasu. The Baku Archipelago now has five fields, the first, Sangachaly-More, was found in 1963. The Soviets feel that the Garasu find makes it almost certain that the oil and gas reserves in the petroliferous area south of the Apsheron Peninsula in the Baku Archipelago will far exceed those likely to be found elsewhere in the Caspian Sea.³¹

Exploration in the Baku Archipelago area is now concentrated on the deep drilling of two areas south and southeast of Garasu. Both are regions of extremely complex geology and thus far hydrocarbons have apparently not been found in commercial quantity.

Farther north along the west shore of the Caspian, the second well drilled from the jack-up *Apsheron* at Inchkhe-More off Daghestan tested at 5.5 million cubic feet of gas per day and 2,000 barrels of oil per day. The field is currently being developed from a fixed drilling platform.³²

Along the east coast of the Caspian Sea (offshore Turkmenistan and Kazakhstan) exploratory and appraisal drilling is continuing. Drilling off the Turkmenistan coast is accomplished from fixed platforms, sand banks, or using the Dutch built jack-up *Khazar*. Development of the Zhdanov Bank and Lam Bank fields is continuing and a new well in the East Livanov Bank gas field tested 875 barrels of oil per day from about 4,350 meters.³³

Zhdanov Bank, discovered in 1967, is the only entirely offshore Turkmenistan field in production. Lam Bank field, located west of the Cheleken Peninsula, has been shut in since its discovery in 1972. The first job assigned to the new \$14.5 million Dutch-built pipelaying barge, *Suleiman Vezirov*, scheduled to have begun trial operations in October 1975, is to lay a 10-kilometer line from Lam Bank to Zhdanov Bank. After completing the Lam Bank to Zhdanov Bank link, the *Suleiman Vezirov* may be used to lay pipelines to two other shut-in gas-condensate fields off the Turkmenistan Cheleken Peninsula, Gubkin Bank and Livanov Bank both discovered in 1973.³⁴

In 1975 the Soviet Union plans to increase offshore Caspian Sea drilling by 24,000 meters and to put 83 new wells on production. Overall Russian offshore drilling is believed to be close to 360,000 meters per year. During the 1976 to 1980 period, Caspian drilling plans call for a 50 to 100 percent increase as compared to 1971

³⁰ Ibid.

³¹ Bakke, Donald R. Deeper Drilling Pays Off for Soviets. *Offshore*, December 1974, p. 173.

³² Rigassi, Danilo A., op. cit., p. 122.

³³ Ibid.

³⁴ Russia to Tap East Caspian Gas Fields, *The Oil and Gas Journal*, October 13, 1975, p. 45.

to 1975. The number of Caspian drilling brigades will be increased from the current 90 to 180.³⁵

Russia's program for increasing offshore Caspian oil and gas production during the next (tenth) 5 Year Plan follows the disclosure of mixed results for the first 4 years of (1971-74) of the current (ninth) 5 Year Plan. The original goals for crude oil and condensate were not attained in the 1971 to 1974 period mainly because of delays in building fixed platforms and connecting trestles and a drilling lag. The Soviets cite weak labor and technological discipline; a high accident rate; poor quality of tools, drill pipe, and casing; and poor mud quality as factors contributing to the failure to meet exploratory drilling goals. The present 5 Year Plan target for Caspian gas production, however, was fulfilled in just under 4 years.³⁶

Minimum recoverable hydrocarbon reserves for the general Caspian region have been estimated by A. A. Meyerhoff. The Kopet Dag foredeep, a complex of basins that extends from the eastern shore of the Caspian Sea to Afghanistan, has been estimated to contain a minimum of 54 billion barrels of recoverable liquid hydrocarbons and 225 trillion cubic feet of recoverable gas both onshore and offshore.³⁷ To the west of the eastern shore of the Caspian, the Kopet Dag structure breaks into two parts, a southern or South Caspian Kura-Rioni basin complex and a northern or Baku-North Caucasus-Crimea basin which includes part of the Black Sea and the Sea of Azov. Estimates for minimum hydrocarbon recovery from this region (both onshore and offshore) is of the order of 28 billion barrels of liquids and 61 trillion cubic feet of gas. Meyerhoff feels, however, that these figures are very conservative, perhaps only one-half of the ultimate recovery.³⁸

The Soviets reported that the goal for raising Caspian Sea oil explored reserves was achieved in 1974 for the first time in several years. "Explored" (roughly, proved plus probable) crude and condensate reserves were increased by 146 million barrels and gas reserves were increased by 494 billion cubic feet.³⁹

THE BLACK SEA

The Soviet Union is making preparations for an oil and gas exploration effort in the Black Sea and its northeastern arm, the Sea of Azov. Consideration is being given to accelerate platform construction on the large Golitsina uplift, discovered by drilling operations which began in 1971. The original drilling found gas of noncommercial value. In 1974, after a 2-year delay, drilling began again and the first commercial Black Sea gas strike was made on the Golitsina uplift in March 1975. Several pay zones were found at a depth of only 750 meters. The successful well was drilled from Russia's second Black

³⁵ Bakke, Donald R. Soviet Russia Hopes for Decade of Offshore Petroleum Expansion Rise Despite Skid in Subsea Oil Production, *op. cit.*, p. 236.

³⁶ Bakke, Donald R. Russia Gears Up Offshore Activity for Biggest Production Gains in Its History. *Offshore*, May 1975, pp. 303-305.

³⁷ Meyerhoff, A. A. Geopolitical Implications of Russian and Chinese Petroleum. *Exploration and Economics of the Petroleum Industry, New Ideas, New Methods, New Developments*, Matthew Bender, New York, Vol. 11, 1973, p. 96.

³⁸ *Ibid.*

³⁹ Bakke, Donald R. Soviet Russia Hopes for Decade of Offshore Petroleum Expansion Rise Despite Skid in Subsea Oil Production, *op. cit.*, p. 235.

Sea platform in the Golitsina area. The gas field located about 70 kilometers west of the Crimea's Tarkhankut Peninsula. Plans have been announced regarding the installation of a third fixed drilling platform on the Golitsina uplift to explore the field and to determine its reserves. A well drilled after the discovery well is reported to have tested commercial gas flows from three zones. A new powerful crane ship is to be launched in the Black Sea in April of 1976 and will use its 1,600-metric-ton lift capacity to erect fixed drilling and production platforms. Also, one of the two new Kaspil type jack-up rigs being built at Astrakhan (the northern end of the Caspian Sea) and expected to be ready in 1977 is to work in the Black Sea.⁴⁰ There are no mobile rigs at present in the Black Sea or the Sea of Azov.

The Soviets have also begun exploration and drilling on both the eastern and western coastal shelves of the Sea of Azov. The first gas discovery in the Sea of Azov was made in November 1973, on the western coastal shelf off the Arabat Spit, which stretches along the Crimea's northeastern shore. The well yielded gas from three zones between 430 and 540 meters at a reported rate of between 4.6 and 9.2 million cubic feet per day with an aggregate flow of 22 million cubic feet per day. The well was drilled from a fixed platform. A second hole has been drilled in this area. Gas has also been recently found on the eastern coastal shelf in Krasnodar Territory's Beisugsky Estuary. Commercial gas was discovered at about 1,280 meters depth and additional drilling in the area is planned for 1976, but farther from shore.⁴¹ Krasnodar Territory has numerous onshore gas fields, including several giants. The Soviets reported an onshore Krasnodar gas discovery in 1973 on a structure that appears to lie mainly beneath the floor of the estuary.

A fixed platform is being constructed on the north shelf of the Sea of Azov for planned exploration drilling in the Elektroraz-Vedochnaya structure about 70 kilometers south of the port of Berdiansk. The drilling target is at 1,770 meters and, if the well is successful, another wildcat will be drilled at Morskaya structure to the northeast.

Geophysical surveys have detected a chain of prospective anticlines between the Sea of Azov's eastern and western coastal shelves.⁴²

In 1974 there was drilling on Zmeinyy Island in the northwestern sector of the Black Sea, about 40 kilometers from shore and near Romanian territorial waters. The wildcat was drilled directionally from the small island toward a subsea structure and was apparently unsuccessful.

Soviet geologists have estimated that the Black Sea and the Sea of Azov each have potential gas reserves of 35 trillion cubic feet.⁴³ At the present pace of exploration and development, however, it is believed unlikely that either the Black Sea or the Sea of Azov will be important commercial gas-producing areas before the 1980's.⁴⁴

⁴⁰ Soviets Plan Third Drilling Platform for Black Sea Area. *The Oil and Gas Journal*, September 1, 1975, p. 51.

⁴¹ Soviets Hit New Sea of Azov Gas Discovery. *The Oil and Gas Journal*, November 3, 1975, p. 37.

⁴² Soviets Expand Gas Play in Sea of Azov. *The Oil and Gas Journal*, September 15, 1975, p. 96.

⁴³ Newsletter. *Oil and Gas Journal*, September 1, 1975.

⁴⁴ Bakke, Donald R. *Soviet Russia Hopes for Decade of Offshore Petroleum Expansion Rise Despite Skid in Subsea Oil Production*, op. cit., p. 232.

OTHER AREAS OF OFFSHORE OIL AND GAS ACTIVITY

Soviet oilmen place great hope in the Baltic Sea. Several promising fields, the Krasnoborsk, Ladushkin, and others, have been discovered on the eastern coast of the Baltic. In Kaliningrad Province, the Ushakova field was extended under the Bay of Kaliningrad of the Baltic Sea, by a deviated onshore well which yielded 700 barrels per day of oil.⁴⁵

The Soviets have done considerable geophysical work in the Baltic Sea, but have apparently not as yet constructed a fixed drilling platform on the Baltic shelf. They have no mobile rigs available in the area. For the past 5 years the Russians have been negotiating with Sweden regarding the offshore boundary between the two countries in the Baltic Sea. The talks were suspended in April 1974 without agreement. The point of contention revolves around the island of Gotland, where Sweden has discovered oil and where some geologic structures extend eastward under the seabed. Sweden wants the boundary to lie halfway between Gotland and the Soviet mainland, while the Soviets maintain that it should lie halfway between the two mainlands.⁴⁶

To the north, the Soviets have made an oil and gas strike on the Arctic coast at Varandei near the southeastern end of the Pechora Sea, an eastern arm of the Barents Sea. Undisclosed quantities of oil and gas were recovered from the 1,615 to the 1,715 meter interval which helps advance the claim of Soviet geologists that commercial hydrocarbons will be found along an extensive area of the Barents Sea shelf.⁴⁷ The Varandei area is at the northern end of the remote Bolshezemelskaya Tundra, lying between the Pechora River on the west and the Ural Mountains on the east. Varandei, like the Vasilkovskoye gas condensate field located to the southwest near the mouth of the Pechora River, is believed to be on a geologic structure that extends offshore. Both Varandei and Vasilkovskoye are located in the Timan-Pechora basin which is believed to contain vast oil and gas deposits, particularly in the northern areas that cut across an extensive shelf zone of the Barents Sea. Russia has completed thousands of kilometers of seismic surveys in the Barents Sea and has made estimates of oil and gas reserves for a large portion of the region.⁴⁸

In the western part of the Barents Sea, the Soviet Union and Norway have been unable to agree on a division of the continental shelf. Norway's position is based on the "middle line principle" as established in the 1958 Geneva Convention, while the Soviets appear to favor the "sector principle" which, in spite of a deviation around Spitsbergen, would bring Soviet sovereignty over an additional 150,000 square kilometers of continental shelf.⁴⁹

⁴⁵ King, Robert E. Petroleum Exploration and Production in Europe in 1974. American Association of Petroleum Geologists Bulletin, Vol. 59, No. 10, October 1975, p. 1831.

⁴⁶ Gotland Strikes Spark Soviet Interest. The Oil and Gas Journal, January 27, 1975, p. 75.

⁴⁷ Ocean Oil Weekly Report, Vol. 9, No. 42, July 14, 1975, pp. 1-2.

⁴⁸ Ibid.

⁴⁹ Kamer, Hansrudolf. Norway and the U.S.S.R. Square Off in the Arctic. Swiss Review of World Affairs, v. 24, no. 6, September 1974, p. 4.

Russia is continuing to drill exploratory holes on Kolguyev Island in the south central Barents Sea. Drilling began in 1972 and indications of hydrocarbons were found in one of the first wells drilled near the island's southern coast.

To the east, on the Kara Sea coast of the huge Yamal Peninsula much exploration activity has occurred. Eight gas fields have been discovered on the peninsula since 1964 and the largest, Kharasavei, extends for about 16 kilometers beneath the Kara Sea floor. The giant field was discovered in May 1974, by a well drilled only 100 meters from the water's edge at Cape Kharasavei. The wildcat well tested at 35 million cubic feet per day below 1,575 meters and total Kharasavei reserves have since been estimated at almost 35.3 trillion cubic feet of gas. Additional drilling has been planned.⁵⁰ The main difficulty with offshore drilling in the region is that the Kara Sea is ice-choked for about 9 months of the year and fog is also prevalent much of the time. On the other hand, Kara Sea waters are relatively shallow, averaging less than 120 meters. The Kara Sea is about twice the size of the Caspian Sea with promising petroliferous regions extending westward from the Yamal Peninsula to the Novaya Zemlya Basin off the east coast of the big island of Novaya Zemlya, which separates the Kara and Barents Seas. Prospective structures also occur north and northeast of the Yamal Peninsula and along the entire length of the Ob River gulf. Russian geologists estimate that the Kara Sea has 388 trillion cubic feet of gas reserves, accounting for perhaps nearly half of the total estimated potential gas reserves in all of the Soviet offshore areas.⁵¹

None of the Yamal Peninsula fields is yet on production and the isolation and climatic conditions of the Kara Sea region will probably prevent any quick exploitation. Exploration is advancing, however, and the Soviets feel that they are now capable of providing the technology for offshore petroleum production under even the most rigorous Arctic conditions.⁵²

In the Far East, there are definite indications that oil and gas occur offshore from Sakhalin Island. The first evidence of onshore oil was found in 1880 and the Katangli field on the northeastern coast has been in production since 1929. Almost all of Sakhalin's current oil and gas output remains in the Katangli area or farther north in several fields centered around the city of Okha. Oil and gas shows have been found along almost the entire length of the eastern coast of the island (sea of Okhotsk) and also in the far south and in scattered locations on the western coast. The sea of Okhotsk has almost the same area as the Gulf of Mexico and the Russians feel that the two bodies may be somewhat comparable in offshore oil and gas potential as well.⁵³ However, Sakhalin has never been a big oil and gas producer. Crude oil output has been only about 48,000 barrels per day and has remained stagnant in spite of the introduction of tertiary recovery methods. There are 39 oil and gas fields on Sakhalin, each generally quite small although often

⁵⁰ Russia Will Explore Gas Field North of the Arctic Circle, *Offshore* December, 1974, p. 122.

⁵¹ *Ibid.*

⁵² *Ibid.*

⁵³ Japanese Have New Oil Target—Promising Sakhalin Island. *The Oil and Gas Journal*, June 10, 1974, p. 94.

having multiple pay zones. The commercial oil and gas zones occur mainly in Miocene deposits and almost all of the reserves have been found at depths of less than 2,000 meters. The best prospects for new deposits are considered to be in the Upper and Middle Miocene sediments, but southern Sakhalin's Paleocene and deep Cretaceous may also be petroliferous. Soviet geologists emphasize, however, that the key to increasing reserves is the continental shelf.⁵⁴

Recently, the Soviets began new efforts to raise Sakhalin's production. Besides increasing the use of secondary and tertiary recovery methods (steam injection is being used extensively to increase recovery of heavy oil in the Okha fields), more wildcats and deeper wells are being drilled. The latest success in this program was announced in June 1975, when a well from the Staryi Nabil fields tested at more than 1,750 barrels of oil per day. This was one of the most prolific Sakhalin wells since World War II. Significantly, Staryi Nabil is in the Katangli area on the Sea of Okhotsk coast and may extend offshore. The Soviets may do more slant drilling from coastal fields, such as Staryi Nabil, to produce from deposits lying partially offshore. This has already been done at the Odoptinskoye field to the south of Okha.⁵⁵

The modest onshore production has not dampened Soviet optimism regarding Sakhalin's offshore promise. The Soviets have estimated the potential oil reserves on the island's coastal shelf at from 22 to 36.5 billion barrels and the gas potential of the Sea of Okhotsk shelf at 11 trillion cubic feet.⁵⁶

According to the Soviets both deep onshore drilling along the coast and offshore geophysical exploration have established that Sakhalin's shelf is very promising for future oil and gas discoveries. More than 40 subsea anticlines which are considered favorable for oil and gas accumulation have been located. The most promising of these offshore areas according to the results of Russian geophysical exploration are: the Astrakhanovskoye uplift, in Sakhalin Gulf at the northwestern tip of the island; the Odoptinskoye and Piltunskoye uplifts, on the northeastern coast southeast of Okha; the Rymnikskoye uplift, in the Pogranichnoye area about half way down the eastern coast; the Bachinskaya offshore area, in the Aniva Gulf at the southern end of the island; and the Krasnogorskaya and Ilinskaya anticlines, on the southwestern coastal shelf.⁵⁷

A joint Soviet-Japanese exploration program off Sakhalin in the Sea of Okhotsk is to get underway late in the spring of 1976 under a compromise settlement of a dispute that has delayed the project for over a year. The Japanese consortium, Sakhalin Oil Development Cooperation Co., recently signed an agreement, with the Soviets to provide financing of \$152.5 million for the project. Of the total, \$100 million is for the exploration work and is repayable with interest only in the event of a commercial discovery. Japan is to receive 50 percent of any oil produced at an 8.4 percent discount from prevailing world prices during the repayment of the \$100 million

⁵⁴ Ibid.

⁵⁵ Russia Steps Up Efforts to Boost Sakhalin Flow. *The Oil and Gas Journal*, July 14, 1975, p. 54.

⁵⁶ Japanese Have New Oil Target-Promising Sakhalin Island, *op. cit.*, p. 95.

⁵⁷ Ibid.

and for 10 years after the repayment has been completed. The amount of \$22.5 million (in yen) is a regular loan for the purchase of Japanese exploration equipment and supplies and the remaining \$30 million is in yen credit for Japanese consumer goods to be sold in Russia by the Russians to raise money for exploration.⁵⁸

Gulf Oil Corporation has agreed in principle to acquire a 3-percent participation in the Japanese consortium for an initial payment of \$211,000. Gulf is in the process of negotiating with Japanese interests on its role in the program, although it is anticipated that one of Gulf's two advanced seismic vessels may be used in the search.⁵⁹ The entire agreement had been held up by Soviet insistence that only Russians be permitted aboard any vessel used for the work. The compromise will permit five to seven non-Soviet citizens on the survey ship as consultants when necessary. The exploration crew will be Russian.⁶⁰

The Soviets plan to make use of artificial islands rather than floating platforms for exploratory drilling off the northern coast of Sakhalin. The area is a difficult one in which to drill because of ice and earthquakes. The type of structure to be used consists of a double-walled steel platform that is towed to the site and then protected by a concrete jacket. A dozen wells can be drilled from each unit.⁶¹

SOVIET OFFSHORE EXPLORATION AND PRODUCTION TECHNOLOGY

Russia's first domestically built mobile rig that is capable of working in deep water was recently towed into the Caspian Sea to begin work on a wildcat well south of the Apsheron Peninsula. The new fourlegged jack-up unit, named the Baky (Baku) is the first of a proposed series of 10 Kaspil-class mobile rigs scheduled for completion by 1980. The Baky was built at Astrakhan at the northern end of the Caspian Sea. It is designed to drill to 6,000 meters in 60 meters of water. Construction is underway at Astrakhan's Red Barricades Shipyard on the second and third Kaspil-class rigs but the overall program as announced in 1970 is far behind schedule. One of these rigs will be assigned to the Caspian Sea and the other to the Black Sea, but neither is expected to begin work before late 1976 or 1977. The Baky required 8 months of fitting out and operational testing after being moved from Astrakhan to Baku in the fall of 1974.⁶²

The Baky is similar in design to the Dutch-built, jackup Chazar which was constructed in Rotterdam in 1967, towed to the Caspian in sections, and activated in 1968. The Chazar can drill to 6,300 meters in 60 meters of water. The Soviets claim, however, that the Baky has improved drilling equipment (produced by the Ural Heavy Equipment Plant at Sverdlovsk), slightly longer legs, better pumps, a more-advanced electric power plant, and a wider helicopter landing

⁵⁸ Japan, Russia Finally Agree on Sakhalin Exploration Terms. *The Oil Gas Journal*, November 3, 1975, p. 43.

⁵⁹ Ibid.

⁶⁰ Ibid.

⁶¹ Russia Will Use Artificial Islands, Offshore, May 1975, p. 283.

⁶² Baky, Russia's First Deepwater Unit, Starts to Work. *Offshore*, October 1975, p. 159.

pad.⁶³ It was fabricated in three sections and was designed to operate in ice free areas in waves up to 12 meters high and in winds of up to 160 kilometers per hour.*

In addition to the Baky and the Chazar, Russia has to obsolete jackups, both also at work in the Caspian Sea. They are the Apsheron, activated in 1966, which can drill to 1,800 meters in 15 meters of water; and the Azerbaijan, activated in 1972, which can drill to 3,600 meters in water up to 20 meters deep.

The U.S.S.R. currently has no semisubmersible drilling rigs, but has announced plans to construct a series of modern semisubmersibles capable of working in waters 100 to 200 meters deep. The first unit of this new series is not expected to enter service before 1978. It will be built on twin pontoons, each supporting three columns with a deck about 30 meters above the water. The rigs will be equipped with a helicopter pad, but apparently will not be self-propelled.⁶⁴

The Soviets are also interested in acquiring foreign technology to assist in the development of subsea oil and gas. Foreign technology import appears essential to any hope of doubling offshore production in the next 10 years. The Russians have recently been reported to be interested in acquiring two of the Norwegian Aker group's H-3 semisubmersibles. They have also been reported to have inquired about obtaining one or more "mini-semi" drilling vessels designed by U.S. firms. England, Finland, and France are also potential suppliers of mobile offshore rigs to the Soviets.⁶⁵

Soviet need for improved offshore technology extends beyond the acquisition of additional mobile drilling rigs. A new \$14.5 million Dutch-built pipelaying barge and pipecoating plant is expected to begin operations in the Caspian Sea shortly. The vessel, named *Suleiman Yezirov* is at Baku undergoing final preparations. It has five welding stations and is reported to be able to lay pipe up to 800 millimeters in diameter. Soviet plans call for the barge to lay about 180 kilometers of subsea oil and gas pipeline annually and thus to shorten considerably the time required to put newly discovered Caspian Sea fields into production. As of mid-1974, the U.S.S.R. had laid a total of only 300 kilometers of oil and gas pipelines beneath the Caspian Sea. Development of new fields on the eastern side of the Caspian has been delayed by Soviet inability to lay pipe in water deeper than 25 meters. The *Suleiman Yeyirov* is designed to lay pipe in waters as deep as 200 meters.⁶⁶

The Soviets have ordered a geological survey ship *Esarc*, from the French engineering company, Serete, for use in the Caspian Sea. The development of the design resulted from cooperation between the Russians and French over a 4-year period. The value of the contract is \$26.5 million. Delivery of *Esarc* is set for September 1977. The ship will have sophisticated equipment including dynamic position-

⁶³ Ibid., p. 161.

⁶⁴ Russia Plans to Construct Semisubmersible "Series." *Offshore*, November 1974, p. 64.

⁶⁵ Russia Displays Interest in Aker Rigs, *Offshore*, October 1975, p. 212.

⁶⁶ Ocean Oil Weekly Report, v. 8, n. 47, August 19, 1974, p. 3.

*NOTE: The Baky was reported to have sunk during drilling operations on its second hole, due to leg collapse. Ocean Oil Weekly Report, July 5, 1976.

ing to allow core drilling in 600 meters of water, a normal rotary drill, and vibrating core drilling equipment. Cores up to 200 meters can be taken.⁶⁷

The Soviets have announced plans to build their largest crane ship to permit construction of fixed Caspian drilling and production platforms in over 90 meters of water. Tentative completion date for this ship is 1976. The self-propelled catamaran will be equipped to lift 600 metric ton loads more than 40 meters above the sea. Deck load capacity will be around 1,500 metric tons. The largest crane ship now operating in the Caspian Sea has a lifting capacity of about 250 metric tons. The new crane ship should permit wildcatting in several very promising Caspian areas that have been inaccessible because of water depth.

The Soviets are experimenting with two new methods of drilling, termed branching and horizontal drilling. Soviet petroleum engineers feel that branching and horizontal drilling should be especially valuable in offshore operations or in tapping subsea sectors of coastal reservoirs by drilling from shore. The Soviets are already producing oil from beneath the Sea of Okhotsk by conventional directional drilling from Sakhalin Island and partially offshore fields are thought to exist in many Soviet shelf areas. The branching well system consists of a vertical bore extending to a point just above a known hydrocarbon zone. At this point, five or six turbodrilled or electrodrilled branches slant away from the vertical bore like roots of a tree, each branch extending for 80 to 300 meters in different directions into the producing horizon. The horizontal well consists of a vertical bore that gradually curves to the horizontal as it reaches the producing horizon and is then continued horizontally for as much as 1,000 meters. Both the branching and horizontal wells greatly increase the area of drainage and thus the productivity of the well, according to Soviet geologists. Soviet experience with the two techniques, however, has usually been associated with oil and gas deposits having producing horizons 80 meters or more in thickness at a maximum depth of 1,500 meters.

The Soviets, who drill 90 percent of their wells with turbodrills, appear to be turning away from downhole drilling motors and are becoming interested in U.S. rotary drilling bits. They are in the process of considering proposals from American firms for the construction of a \$200 million facility to make rotary bits.⁶⁸

SOVIET POLICY REGARDING OFFSHORE OIL AND GAS EXPLOITATION

In recent years the Soviets have attempted to revive their long-neglected offshore petroleum industry. Professor A. Geodekian, Deputy Director of the U.S.S.R. Academy of Sciences' Oceanographic Institute, called for increased basic research in the fields of offshore petroleum geology and geochemistry in an article published in *Pravda* last year.⁶⁹

The article warns that these areas have been given too little attention, possibly because of the country's large proven reserves of oil and gas onshore. While the Soviet Union can obtain large increases

⁶⁷ Serete Wins Russian Survey Order. *Offshore*, May 1975, p. 153.

⁶⁸ Newsletter. *The Oil and Gas Journal*, August 4, 1975.

⁶⁹ Basic Ocean Research is Pushed Faster in Russia. *Offshore*, December 1974, p. 19.

in onshore oil and gas production for many years into the future, the greater drilling depths and remote Arctic areas at which the new onshore discoveries are being made add considerably to the cost and complexity of exploring and developing dry land deposits. Under these conditions, the article continues, the continental shelves and the continental slopes of the inner seas and of the surrounding oceans merit closest attention. The article concludes with the recommendation that the potential oil and gas content of all the offshore areas surrounding the Soviet Union and also of all the interior seas be evaluated. To accomplish this, Professor Geodekian concludes that better methods of exploring offshore areas and of estimating potential reserves of oil and gas must be developed. A laboratory dealing with the problems of oil and gas content of subsea areas has been established in the U.S.S.R. Academy of Sciences' Oceanographic Institute.

The Soviet Union is thus looking increasingly to its continental shelves for additional oil and gas production. According to B. V. Tkachenko, who directed the Institute for Arctic Geology for almost 25 years, potentially petroliferous structures on Russia's western Arctic shelves in the Barents, Pechora, and Kara Seas will be clearly defined within the next few years, permitting more detailed exploration and then actual development within the next 10 years.⁷⁰

Russian offshore oil output slumped to a 10-year low in 1974, but offshore gas production continued to make strong gains which have more than compensated for falling crude output since 1970. The Soviets believe that 1975 will be the turnaround year for crude oil and condensate production from the Caspian Sea. There is already considerable evidence to substantiate Russian predictions that during the next decade there will be record expansion of its offshore petroleum industry. New technology is beginning to reach the Caspian in growing quantity and the Soviet government has authorized more money, material, and manpower for subsea petroleum operations than ever before.⁷¹

The falling offshore output during the early 1970's was caused by the depletion of the giant Neftianye Kamni field in the Caspian Sea together with the depletion of other old, but much smaller, Caspian deposits; and the Government's decision to concentrate petroleum investments in areas such as western Siberia, where expected returns in new reserves per meter of drilling far exceeded the expectations from greater subsea exploration and development.⁷² The official Soviet plan now calls for offshore Caspian oil production to stabilize this year at about 1974's level (considerably below the original target for 1975) and then begin a long steep climb. The 1974 oil and condensate production of 231,000 barrels per day is expected to increase to 360,000 barrels per day in 1980 with a jump to 500,000 to 560,000 barrels per day anticipated by 1985.⁷³ A proportionately smaller increase is planned for gas. While Caspian oil production has fallen during recent years, gas output has far exceeded government

⁷⁰ Ocean Oil Weekly Report, Vol. 9, No. 10, December 2, 1974, p. 2.

⁷¹ Bakke, Donald R. Soviet Russia Hopes for Decade of Offshore Petroleum Expansion Rise Despite Skid in Subsea Oil Production, *op. cit.*, p. 230.

⁷² *Ibid.*

⁷³ *Ibid.*

expectations climbing from less than 124 billion cubic feet in 1970 to about 265 billion cubic feet in 1974. Gas production is expected to exceed 282 billion cubic feet in 1975 and the target for 1985 is 424 billion cubic feet.

The Soviet Government's decision to invest significantly more capital in offshore exploration and development during the 1976 to 1985 period accounts for the optimistic new production forecasts. There are indications that the U.S.S.R. has become increasingly impatient with the slow pace of domestic design and construction of modern-mobile offshore rigs and may purchase more foreign-built units. However, the unfavorable foreign trade balance in 1975 could reduce these kinds of purchases.

Soviet plans for an increasing effort in offshore oil and gas development are a part of a major effort to increase oil production and to economize on fuel use. The fuel situation was named by Prime Minister Alexei N. Kosygin and the council of ministers as an item which would receive special attention in the next 5 Year Plan, which begins January 1, 1976.⁷⁴ This shift in policy is the result of three developments: total oil production is not increasing as rapidly as planned; oil reserves, particularly in the Arctic regions, are proving technologically more difficult and expensive to exploit than expected; and both domestic and Comecon demand for oil is expanding faster than expected. Currently the Soviet Union produces more oil than it needs and exports about one-fourth of its output. Ten percent of total Soviet output goes to capitalist customers, but it also satisfies more than three-fourths of the oil needs of its Comecon allies. However, by 1980 Soviet domestic requirements could match output at which time the U.S.S.R. would have to become an importer of oil should it wish to continue to supply its allies.⁷⁵

The Soviets insist Western forecasts that Russia may face energy problems in the early 1980's are based on underestimates of future Soviet petroleum output. Dzandar Tackoev, deputy oil minister, in a recent Moscow interview suggested that Russia is raising production goals beyond those that Western experts have already judged to be overambitious. For the next 5 years, Mr. Tackoev projected an annual increase in petroleum output of at least 600,000 barrels per day. According to his figures, production by 1980 would reach 640 million tons per year, a figure well ahead of Western estimates and also higher than the 1980 target of 600 million tons per year indicated previously by Valentin Shashin, the Soviet oil minister. Mr. Tackoev said that his ministry was in contact with American oil companies that could sell the technology and equipment to help increase Russia's oil output. The Soviet Union is also negotiating with several Western companies for the purchase of three plants to manufacture fixed platforms for offshore oil production, mobile drilling rigs, and subsea production equipment.⁷⁶ An influx of western technology would appear necessary to meet such ambitious production goals, but payments would have to be made from the Soviets limited hard currency supply.

⁷⁴ Soviets to Push Oil Production in Next Five-Year Plan. *Journal of Commerce*, June 12, 1975.

⁷⁵ Less Confident on Oil, Soviets Raise Prices and Spur Development. *The Washington Star*, March 29, 1975.

⁷⁶ Ulman, Niel. Western Forecasts of Soviet Energy Crisis are Erroneous, Russian Oil Official Says. *The Wall Street Journal*, October 21, 1975.

The United States is far in advance of the Soviet Union in offshore oil and gas technology. However, the Soviet Union, with total apparent oil and gas reserves two to three times that of the United States and a much smaller rate of domestic consumption, has determined to significantly accelerate the exploitation of its offshore deposits in an attempt to maintain its energy independence. The energy dependent United States, on the other hand, is currently assessing its policy toward offshore oil and gas production in light of the various impacts of such development on the coastal zone and the marine environment as well as taking into account overall energy considerations.

SOVIET POSITIONS AT THE LAW OF THE SEA CONFERENCE REGARDING CONTINENTAL SHELVES

In the Soviet view, their position on the continental shelves constitutes an improvement on the existing law of the sea. The areas of improvement that have emerged from the presentations of the Soviet delegation are the need to limit the territorial sea to 12 miles (the traditional Russian territorial sea) and the need to strictly define legal extent of the continental shelf. Maximum claims to the continental shelf, under the Soviet proposal, would be to 500 meters in depth or 100 nautical miles in extent, whichever was greater.⁷⁷

The Soviet position is defined as: (1) the outer limit of the continental shelf may be established by the coastal state within the 500 meter isobath. (2) In areas where the 500 meter isobath is situated at a distance less than 100 nautical miles measured from the baselines from which the territorial sea is measured, the outer limit of the continental shelf may be established by the coastal state by a line every point of which is at a distance from the nearest point of said baselines not exceeding 100 nautical miles. (3) In areas where there is no continental shelf, the coastal state may have the same rights in respect to the seabed as in respect to the continental shelf, within the limits provided for in paragraph (2).⁷⁸

Soviet reference to depth as the determining factor in claims to the continental shelf is ideally suited to take maximum advantage of their existing physical situation. The continental shelves of the U.S.S.R. cover an area of about 6 million square kilometers to a depth of 200 meters, the depth usually considered to mark the limit of sovereignty. To permit claims out to an additional 300 meters in depth, particularly in the shelf areas of the Arctic seas and the Sea of Okhotsk, would add to this an enormous additional area. Successful exploitation of these vast shelf areas would, in all probability, result in very substantial additions to Soviet oil and gas production. The Soviets do not as yet have the technology to exploit oil and gas reserves at these depths, but such deep water technology is currently available in the West. The areas between 200 and 500 meters could remain to the Soviets as a reserve to be explored after the shallower shelves had been drilled.

⁷⁷ Janis, Mark W. and Daniel, Donald C. F. *The U.S.S.R.: Ocean Use and Ocean Law*. Occasional Paper No. 21, Law of the Sea Institute, University of Rhode Island, May 1974, p. 10.

⁷⁸ *Ibid.*

SOVIET EXPLOITATION OF OCEAN MINERAL RESOURCES

(By James E. Mielke¹)

SUMMARY

The Soviet Union is continuing to place increasing emphasis on the extraction of minerals from seawater and development of marine mining. Reports in the Soviet press indicate that while the West is more technologically advanced in these areas, development is proceeding at a fast pace in the Soviet Union. In addition, the Soviets hope to increase the efficiency of their mineral resource exploitation in many areas through acquisition of Western technology along with technology development of their own. In general, Soviet publications tend to glamorize the future prospects of exploiting ocean mineral resources and the heroics of the workers in remote areas, while glossing over the technological difficulties. In 1969, the U.S.S.R.'s Academy of Sciences predicted a sharp increase in underwater mining in the years immediately ahead and described development of huge marine mining and concentration combines resembling floating island-cities for use in remote ocean areas. In the fall of 1974, the Soviets began the first commercial recovery of tin-bearing sands from the Arctic Ocean. This was accomplished by means of a flotilla of ships containing fuel, provisions, living quarters, dredging equipment, and concentrating facilities all frozen together in the ice and resembling in a sense, an "island city."

The West, and the United States in particular, has the technological lead in developing deep seabed mining capability. Recent Soviet reports indicate that while the Soviets have not yet developed this advanced technology, there is a strong desire not only to be competitive with other industrialized countries in deep seabed mining but to be a leader in this field. The United States, on the other hand, has been reluctant to take any steps to substantively encourage deep seabed mining by American nationals out of respect for the objections of developing countries, and hopes of attaining some form of international good will in the nature of a Law of the Sea Treaty.

INTRODUCTION

The Soviet Union is fully self sufficient in 29 of 36 key industrial materials and the extraction of many minerals in the Soviet Union is doubling approximately every 8 to 10 years. Soviet exports of mineral commodities include aluminum, antimony, cadmium, chromium, copper, iron, lead, magnesium, manganese, titanium, vanadium, zinc, abrasives, asbestos, cement, clays, fertilizer materials, cryolite, graphite, gypsum, salt, sodium and potassium compounds, sulfur and

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pyrites, talc, carbon black, coal, coke, natural gas, and petroleum.² However, self sufficiency is not the entire goal of Soviet mineral development policy. Exports of minerals produce foreign exchange to help pay for imports, even though most minerals exported could be consumed within the country. Fuels, minerals, and metals made up about 40 percent of the total declared Soviet exports in 1974.

As evidence of the importance placed on mineral resource development, the entire 1975 summer session of the U.S.S.R. Supreme Soviet (it meets twice a year in July and December) was devoted to consideration of a policy document titled "Fundamental Principles of the Legislation of the U.S.S.R. and the Union Republics on Mineral Wealth." This legislation which will come into force on January 1, 1976 reflects the basic principles of exclusive ownership of mineral wealth by the State and specifies the tasks and obligations of enterprises, organizations, and citizens in the development and exploitation of mineral resources. Attention was drawn to the need to develop technology to reduce waste and improve the efficiency of mineral extraction industries.

Over the past several years Russian journals have reported development of several types of new equipment for underwater exploration and mineral recovery. In 1970, *Izvestia*, the governments' official newspaper, declared that one need hardly have great insight to predict the appearance of a specialized Soviet fleet of ocean-going dredges of various types, ships equipped with ocean mining machinery and floating concentration facilities. The only question *Izvestia* raised is when this fleet would make its appearance. The first generation of these dredges is apparently now in operation. On April 4, 1975 *Pravda* contained a glowing description of the first winter's activities of a mining complex in the Arctic Ocean.³

OFFSHORE MINING

The extraction of titanium-containing sands from the Baltic sea in the vicinity of Liepaja was begun in 1968. The *Vyborgsky*, described as a super dredge, was used in the first experimental extraction of offshore ilmenite-rutile-zircon sands by the U.S.S.R. The titanium sands are found in strata from 30 cm. to one meter in thickness, at rather shallow depths of three to eight meters, and are several times cheaper to recover than similar materials mined on land.⁴ The Baltic shelf is also rich in other rare metals. Additional deposits of ilmenite-rutile-zircon sands have been found in the Black Sea.

In 1969 the 1,100-ton ship *Tura* was turned over for ocean mining research by the U.S.S.R.'s Ministry of the Maritime Fleet with plans for equipping it for use in recovering and concentrating tin-bearing ore.⁵ This ship has been successful in mineral exploration of continental shelf areas in the Far East especially where ore minerals have been found on beaches near Nakhodka Bay on the Okhotsk, and

² U.S. Bureau of Mines. 1972 Minerals Yearbook, v. iii, U.S. Govt. Print. Office, Washington, D.C., 1974, pp. 813-850.

³ Yusin, A. Mine in the Ocean. *Pravda*, April 4, 1975, p. 6. English translation in *The Current Digest of the Soviet Press*, v. XXVII, No. 14, 1975, pp. 26-27.

⁴ Mikhailov, S. *Voprosy ekonomiki*, No. 7, July 1972, pp. 101-106. English translation in *The Current Digest of the Soviet Press*, Vol. XXIV, No. 40, November 1, 1972, pp. 1-6.

⁵ *Oceanography Newsletter*, v. 5, n. 17, April 27, 1970, pp. 1-2.

on the northeastern and western coasts of Kamchatka. In Kamchatka, Sakhalin, and the Kurles there are large reserves of titaniferous magnetite beach sand deposits (titanium and iron ore) considered sufficient to warrant the foundation of a metallurgical complex utilizing local sources of power, where possible, such as tidal and geothermal. As additional justification for locating a metallurgical complex in this area, Soviet analysts indicate that by the time the underwater mineral bearing sand deposits are exhausted down to a depth of 20 meters, "there is no doubt that techniques will have been evolved for raising raw materials (manganese nodules) for the production of iron, copper, cobalt, etc., from the bed of the Pacific Ocean."⁶

Underwater alluvial deposits of gold have been discovered in Tinkan Bay (the deposit is about two kilometers across) and of tin ore in the area of Khuntazeyev and Sayaukhu Bays and other bays in the Sea of Japan.⁷ Deposits of cassiterite (tin ore) in the Sea of Japan extend along the coast in three bands: one along the beach and the other two on the shelf, the first at depths of 5 to 7 meters, the second at depths of 15 to 17 meters. In addition, deposits of phosphorites have been found on the coastal shelf of the Sea of Japan. Sands containing a large percentage of rare metals and lying at a depth of 40 meters have been found in the Kurile Islands, on the bottom of Prostor Gulf near the island of Iturup.

Rich placer deposits of cassiterite lie on the bottom of Vankina Bay on the Lapteve Sea in the Arctic Ocean where the barge *Gornyyak* is being used in the extraction of this ore. This barge, which has ore-concentrating equipment and a huge crane capable of lifting multi-ton trucks, is part of a flotilla of vessels frozen into 2 meters of ice to form a year round mining complex. In addition to the *Gornyyak*, this motionless fleet includes two steamers, a tanker, a floating warehouse, the small boat *Sever*, and the *Malyutka* described as a submarine hydraulic dredger. One of the steamers, *Petrozavodsk*, formerly provided European ocean passenger service for several dozen years. The tanker *Mordovshchikov* holds fuel for the tractors, all-terrain vehicles and trucks and the concentrating plant's diesel engines. While the first mining operation in the Arctic Ocean was in place and occupied for the winter, 1974-75, mineral recovery shut down in the fall of 1974 and was not scheduled to begin again until spring. The neighboring Selyakhskaya Bay, the Cape Svyatoy Nos area, the Proliv Dmitriya Lapteva Strait, and the southern part of Bol'shoy Lyakhovskiy Island are also rich in tin.

The Soviets have determined the following minimum content of metals and minerals for profitable recovery offshore: (a) tin in non-freezing areas of the sea, 100 grams per ton of sand, and in freezing areas, 200 to 300 grams; (b) iron in magnetite and titanomagnetite placer deposits, 10 percent (c) conventional ilmenite-rutile-zircon placer deposits, 35 grams per cubic meter of sand. Using the above grade limits, the following metals and minerals could be profitably recovered from the U.S.S.R.'s continental shelves: ilmenite, rutile, zircon, titanomagnetite and magnetite, cassiterite, wolframite, gold, diamonds, phosphorite, and other useful minerals.

⁶ Vasilchikov, N. V. *Gornyi Zhurnal*, n. 9, 1974, p. 10. English translation in *Mining Magazine*, January 1975, pp. 75-76.

⁷ Mikhailov, op. cit., p. 108.

MANGANESE NODULE EXPLORATION

The Soviet Union has been actively engaged in manganese nodule research and prospecting since the 1950's. Large numbers of photos and samples of nodules have been obtained. Several technical papers have appeared in Soviet scientific journals over the years describing the mineralogy, chemistry, and internal structure of the nodules, their distribution, and hypotheses of origin.⁸ Earlier expeditions were mainly concentrated in the Pacific and Indian Oceans while later investigations have extended into the Atlantic Ocean. At a meeting in the Baltic Sea port of Riga in 1971, Soviet and Eastern European geologists set up an International Coordinating Center of Marine Exploration in the Soviet Union. According to a published interview with G. A. Mirlin, head of the Soviet delegation at the Riga meeting and head of the Geology and Mineral Resources Department of the State Planning Committee, expeditions are being planned to the Atlantic and Indian Oceans to select prospective sites for mineral exploitation.⁹

Although the Soviets have dredged many nodule samples from the deep seabed for study purposes, there seems to be little progress toward commercial exploitation. There are indications that no technological development for commercial exploitation of nodules had even begun in the Soviet Union prior to 1970 or 1972. According to an *Isvestia* interview in 1970 with V. Kostin, Deputy Minister of Nonferrous Metallurgy, there is a need to expand ocean-bottom exploration and to give thought to construction of ships for experimental extraction of ore nodules.¹⁰ In 1972 S. Mikhailov wrote in the magazine *Voprosy Ekonomiki* (Economic Problems), organ of the U.S.S.R. Academy of Sciences' Economics Institute, "In this field we are lagging significantly behind the advanced capitalist countries of the West (the United States and Japan plan to begin in 1974-1975 the industrial extraction of iron and manganese concretions from the bottom of the Pacific Ocean at depths of 4,000 to 5,000 meters)."¹¹ He went on to state that it is necessary by the end of the 5 Year Plan (1975) to provide a scientifically substantiated forecast of the volume of useful minerals on the U.S.S.R.'s continental shelf and to begin work on the technical base for exploiting these minerals so that "a large-scale mineral raw-material industry on the seabed and ocean floor can be started in the next 5 Year Plan." From this it would appear that the Soviet Union's major thrust toward offshore mining will come during the period 1976-80 and that mainly will be based on the continental shelf with some development expected toward deep seabed exploitation. To further this goal and deal with other problems of underwater mineral exploitation, the U.S.S.R. has established the All-Union Scientific-Research Institute for Marine Geology and Geophysics and a Problems Laboratory for Underwater Extraction of Minerals.

⁸ Skornykova, N. S. and P. F. Andrushchenko. Iron-manganese nodules from the central part of the South Pacific. "Oceanology", Vol. 8, No. 5, 1968, pp. 692-701.

⁹ "New York Times," Soviet bloc plans big seabed study. April 24, 1971.

¹⁰ "Oceanography Newsletter." op. cit., p. 2.

¹¹ Mikhailov. op. cit., p. 108.

On the Soviet shelf, low grade manganese nodules have been discovered in the Baltic Sea, in the Gulf of Riga. In some areas of the shelf they are reported to exceed 3500 tons per square kilometer.

The Soviets have expressed a strong interest in exploiting the deep seabed for manganese nodules, as cited above in justification for a coastal metallurgical complex in far eastern U.S.S.R. Although its onshore mineral resources are adequate, the Soviet Union is pressing its seabed search. In this regard, some observers have pointed out that the Soviets appear to value the mineral resources of the ocean floor beyond national jurisdiction far more in the long run than the "fickle good will of third world nations" which favor monopolistic development of seabed resources by an international organization.¹² One Soviet scientist was recently quoted as saying, "The ocean floor has turned out to be an underwater Klondike, and it awaits a zealous master."¹³ Some Western observers feel the Soviet Union is evidently prepared to gamble that it can develop the advanced technology for deep seabed mining and that, in time, it will cost less to mine minerals from the ocean floor than onshore ores.¹⁴ Furthermore, the Soviet Union may be less inclined to refrain from using its seabed mining technology, once developed, than the United States which out of deference to developing nations has generally discouraged any form of government support (other than verbal) for unilateral action by its mining interests, causing them to delay proceeding to commercial operation. Significantly, the Soviet Union will also have the naval might to deter any challengers to its deep seabed exploitation if the occasion should arise.

RECOVERY OF MINERALS FROM SEAWATER

The Soviet Union is developing its marine chemical industry with special emphasis being placed on reducing the West's technological superiority in extracting bromine and magnesium from seawater. In the U.S.S.R. more than 70 percent of the requirements for bromine and more than 65 percent of the requirements for iodine are satisfied through domestic production from seawater. However, Soviet industry has mastered bromine extraction only in southern embayments such as the Sivash Sea (a shallow body of water located just east of the Crimea and west of the Sea of Azov), where there are 600 to 1000 grams of bromine per cubic meter of water.¹⁵ Furthermore, according to a report in *Voprosy Ekonomiki*, "we are confronted with the task of artificially increasing the bromine content per cubic meter of seawater to 2,000 grams as a precondition for increasing the capacity of bromine plants and turning them into profitable enterprises."¹⁶ By comparison, until 1969 the United States extracted bromine from ordinary seawater containing only 65 grams of bromine per cubic meter of water. However, this was first concentrated by solar evaporation before processing.

¹² "Offshore." Opposing an International Agency to Control Deep Ocean Resources Seems to Indicate that Russia has Plans of its Own, October 1975, pp. 64-66.

¹³ Ibid., p. 64.

¹⁴ Ibid.

¹⁵ Mikhailov. op. cit., p. 105.

¹⁶ Ibid.

The Soviet Union has also begun and is expanding production of magnesium from brine lakes in the Crimea which in the past were connected to the Black Sea. Total Soviet magnesium production from seawater, in terms of the oxide (MgO), reached 100,000 short tons in 1973. For comparison, the United States began recovery of magnesium from seawater in 1940 and Great Britain satisfies more than 80 percent of its requirements for magnesium through marine operations, where its production costs are lower than imported magnesium. In 1973 U.S. magnesium production from seawater was 695,000 short tons MgO.¹⁷

One area of particular interest to the marine chemical industry of the U.S.S.R. is the Zaliv Kara Bogaz Gol (an eastern arm of the Caspian Sea). The Zaliv Kara Bogaz Gol is nearly as large as Lake Ontario, and is gradually drying up (maximum water depth is only about 10 meters). Most of the Soviet Union's primary production of sodium sulfate comes from this area, and work is progressing to expand this into a profitable export item. Besides sodium sulfate, Zaliv Kara Bogaz Gol is rich in bromine and magnesium.¹⁸

According to *Voprosy Ekonomiki*, next in order of priority for both the Soviet and world marine chemical industry is extraction of rare and trace elements, especially gold, from the seas and oceans.¹⁹ The Soviets look toward the complete utilization of seawater—the extraction from it of magnesium, bromine, boron, cesium, and other chemical components—by building integrated chemical enterprises, as the most important way of making the products of marine chemistry cheaper.

LAW OF THE SEA POSITION ON A DEEP SEABED REGIME

The Soviet Union has made known its position on a proposed international seabed regime both through its own spokesmen and those of Eastern European countries. As one of the world's greatest beneficiaries from the traditional rules of international legal order of the oceans, the Soviet Union is reluctant to alter those rules. At first, the Soviet Union opposed the notion of a new international organization.²⁰

It has been an important Soviet principle that all States should have the right to consent to changes in the law of the sea and the Soviet delegation has been a proponent of reaching ocean decisions by consensus rather than by majority vote or by a supernational organization. Characteristic of the Soviet position was its long and vocal support of the Intergovernmental Oceanic Commission as the proper means for deciding questions of ocean use.

As pressure grew to establish some form of international authority, the Soviet Union responded by insisting that the powers of that organization be strictly limited so as not to infringe traditional freedom:

¹⁷ Offshore. Special emphasis is placed by Soviets on improving extraction of minerals from seawater. September 1973, p. 86.

¹⁸ U.S. Bureau of Mines. 1973 Minerals Yearbook Vol. 1, U.S. Govt. Print. Office, Washington D.C., 1975, pp. 742-743.

¹⁹ Mikhailov, op. cit., p. 105.

²⁰ United Nations. A/C1/PV 1709, 1969, p. 76.

"There should be an article stating specifically that the provisions of the treaty did not affect the legal status of the superadjacent waters or air-space of the seabed."²¹

In proposing that the international regime's executive board reach decisions only on the basis of consensus, the U.S.S.R. sought to ensure that the Soviet influenced countries would have effective veto power over organizational decisions. The U.S.S.R. has also proposed restricting the power of the authority so that it would only "coordinate the activities of states and not direct them."²²

In an attempt to appear somewhat more acceptable to developing nations at the third U.N. Conference on Law of the Sea in Caracas, 1974, the Soviet Union endorsed exploitation by the Authority through service contracts and joint ventures as well as exploitation by states. Spokesmen for the German Democratic Republic also made a point of advocating that national liberation movements recognized by regional organizations can participate in the seabed authority.

The Soviet position was formally presented in a working paper submitted in the Geneva session of the Law of the Sea Conference in 1975.²³ The Soviet Union endorses a contract arrangement with a restricted number of contracts awarded to each state to prevent the development of monopolies. Combined evaluation and exploitation contracts would only be awarded to states or groups of states. Private entities could operate under subcontract to the contracting state. States may transfer their rights to seabed exploitation to other contracting states, but only with the approval of the international seabed organization. Contracts would be awarded by a sector method that would allow an equal balance of favorable versus less favorable areas of mineralization for each state. Sectors would be reserved for states not yet possessing deep seabed mining technology, and provision would be made for training their personnel by the states contracting for seabed exploitation. Sectors would also be reserved for exploitation by the international organization itself or by subcontracts.

By combining evaluation and exploitation into a single contract, the Soviet proposal would protect the investment of a state conducting exploration from being arbitrarily denied the right to proceed to exploitation. On the other hand, the Soviets were concerned that exploration that had already been carried out should not of itself convey the right to secure a contract for exploitation. In general, this working paper protects Soviet interests by favoring the entry of a developed country into seabed exploitation after the creation of an international organization, but essentially negates the lead of any parties already conducting evaluation.

COMPARISON TO THE UNITED STATES

United States firms have been giving serious consideration to deep seabed mining since the early 1960's and U.S. technology for recovering manganese nodules was first ocean tested in 1970. Several firms have now completed the exploration and evaluation stage and are

²¹ United Nations. A/AC 138/SR 56, 1971, p. 154.

²² United Kingdom. A/AC 138/SR 56, 1971, p. 155.

²³ United Nations. A/CONF. 62/C.1/L.12, 1975, 15 p.

ready to proceed to commercial development. However, progress toward commercial development is being severely retarded by the lack of security private firms feel is necessary to protect the large investments required for commercial scale operations (on the order of \$300 to \$500 million for each mine site).

Despite numerous exploratory and sampling expeditions there are no solid indications that the Soviet Union has developed a commercial seabed mining capability. Inspection of import and export tabulations of mineral commodities of the U.S.S.R. would suggest that offshore mining development in the Soviet Union has been primarily stimulated by the desire to become self sufficient in metals that are now imported (primarily tin), or considerably more expensive to mine on land (titanium minerals). Consequently, developing expensive technology to recover manganese nodules from the deep seabed would not be as pressing a concern to the U.S.S.R. as it would be to the United States which imports the metals contained in manganese nodules (primarily nickel, copper, cobalt, and manganese). Furthermore, the Soviets have a continuing problem of inefficient recovery of copper and nickel from ores resulting in the loss of considerable amounts of metals.^{24,25} According to some observers, Soviet authorities recognize that the solution to this problem could be dependent on greater input of technical and other assistance from the Western World.²⁶ Since recovery of metals from manganese nodules requires a certain amount of sophistication, one might suspect that the Soviets have not developed the technology to process nodules.

On the other hand, while the U.S.S.R. is essentially self sufficient or a major exporter of the major metals contained in manganese nodules, the Soviet Union continues to express interest in attaining seabed mining capability. One reason would be that mineral exports are a major source of foreign exchange needed to pay for Soviet imports. In order to maintain an adequate level of mineral exports, the Soviet Union is stressing increased recovery and development of mineral resources in all areas. Another possible explanation for Soviet interest in the deep seabed is the idea of "keeping a foot in the door" along with other industrialized countries. If the deep seabed resources were to be developed, the Soviet Union would want to have a major hand in the exploitation.

The United States also has a technological lead in the extraction of minerals from seawater. In the United States magnesium is extracted from ordinary seawater, whereas the U.S.S.R. has mastered its extraction only from water containing much higher concentrations.

In informal negotiating sessions in Geneva, the United States proposed a mechanism for reserving one-half the commercially valuable mine sites for the international seabed authority to exploit by contractual joint ventures in which the authority would control the terms and conditions. In an equivalent area the sovereign states or their nationals would be free to exploit the seabed resources under contract in a responsible and nondiscriminatory fashion. Both types of contractual arrangements would provide for profit sharing with developing countries.

²⁴ U.S. Bureau of Mines. 1971 Minerals Yearbook, v. III, "Area Reports: International," U.S. Govt. Print. Office, Washington, D.C., 1973, p. 840.

²⁵ Mining Journal. Soviet Eye on Mining, August 15, 1975, pp. 113-114.

²⁶ Ibid., p. 114.

The United States position at the Law of the Sea Conference is generally much closer to that of the Soviet Union than to the developing countries. The United States differs from the Soviet Union on the quota and contracting system. The United States would permit private entities to enter into contracts with the international authority with no quota on the number of areas so long as they were paired with equivalent areas for the authority. Since it controls a number of Eastern European countries, the Soviet Union would obviously gain by its proposal for a quota system recognizing only states. Both the United States and the Soviet Union are agreed on the right of all States to explore and exploit the seabed on an equal footing and without discrimination, and oppose exploitation only under direct control by the Authority.

The basic contention in the Law of the Sea seabed debate is between the industrialized countries and the developing countries which favor a strong international authority with "direct and effective control" over all activities and, preferably, direct seabed exploitation only by that authority.

AQUACULTURE IN THE SOVIET UNION

(By Christopher H. Dodge¹)

BACKGROUND

The Soviet Union supports one of the largest fisheries industries in the world. Fisheries research in Russia dates back to the 13th century. Until about 1928, most research involved surveys and expeditions to determine the extent and types of fish available for exploitation. However, after 1928, there was increased emphasis on fish husbandry and the management of fishery resources.²

The artificial reproduction of fish and other fresh water and marine life (aquaculture) was first attempted in the Soviet Union in the 1930's and 1940's in connection with efforts to control the fishing economy in the Caspian and Azov Seas. Today, the Soviet effort in aquaculture and the associated marine biological sciences is among the largest in the world. Research in these fields is conducted in scores of institutes under the U.S.S.R. Ministry of the Fishing Economy and the Academy of Sciences. The area devoted to fish culture in the Soviet Union has more than doubled since the 1950's.³ The world ranking of the Soviet Union in fish culture production during the late 1960's is provided in Table 1.

According to Ovchynnyk, who has conducted the most comprehensive study of aquaculture in the Soviet Union,⁴ there are more than 25 million hectares⁵ of lakes, about 5 million hectares of artificial reservoirs, more than 3 million kilometers of rivers suitable for fishing, and more than 45,000 hectares of ponds suitable for fish culture. But in the 1960's, of 200,000 hectares of ponds at the disposal of collective farms (kolkhoz) and state farms (sovkhoz), only about 90,000 hectares were under active management. That statistic has probably increased somewhat since the 1960's

GENERAL INFORMATION AND STATISTICS

As stated by Doryshev,⁶ there are two major reasons for the increasing emphasis on aquaculture in the Soviet Union. First, the concept that fish populations in the world oceans are infinite is rapidly being proved to be an illusion. It is true that reserves of unexploited fish could add significantly to total fisheries production, but reserves of

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² Borisov, P. G. Fisheries Research in Russia: A Historical Review. Washington, D.C., U.S. Department of Interior, 1964, 187 p. (translated from Russian).

³ Doryshev, S. Aquaculture in the Soviet Union. Marine Fisheries, No. 10, 1973, p. 42.

⁴ Ovchynnik, M. Soviet Fish Culture. IN: The Status and Potential of Aquaculture, Particularly Fish Culture (Bardach, J. E. et al., eds.), Washington, D.C. AIBS, 1968, pp. 194-224 (PB177 768. Clearinghouse for S & T Information, Springfield, Va. 22151).

⁵ One hectare equals 2.5 acres

⁶ Doryshev, S. Aquaculture in the Soviet Union. Op. Cit.

certain commercially valuable stocks are shrinking considerably in recent years due to overfishing. Second, the accelerated development of marine biology, ecology, and engineering has made it possible to develop aquaculture as a major component of the economy like agriculture.

TABLE 1. — *Estimated production of fin fish*

Country	Area (hectares)	Production (metric tons)
1. China (Mainland)	700,000	2,240,000
2. India	607,915	480,000
3. U.S.S.R	90,000	190,000
4. Indonesia	266,300	141,075
5. Philippines	164,414	94,573
6. Thailand		87,764
7. Japan	508	85,000
8. Taiwan	39,234	56,185
9. U.S.A	28,300	40,200
10. Pakistan and Bangladesh	30,780	37,540
11. Malaysia	90,473	25,648
12. Hungary	22,000	19,697
13. Italy		18,000
14. South Vietnam	2,500	16,500
15. Yugoslavia	9,747	15,840
16. Ceylon	10,000	15,000
17. Rumania	6,400	12,000
18. Denmark		11,000
19. Poland	62,791	10,909
20. Czechoslovakia	42,798	10,641
21. Israel	4,904	10,220
22. Brazil		9,967
23. Mexico	12,650	9,026
24. Khmer		5,000
25. Germany, East		3,669
26. Germany, Federal Republic	11,824	2,627
27. Burma	2,920	1,494
28. Zaire	4,058	1,406
29. Bolivia	25,502	1,400
30. Austria	3,000	780
31. Hongkong	629	690
32. Zambia		689
33. Uganda	410	670
34. Madagascar	1,280	615
35. Norway		600
36. Singapore	890	554
37. Nigeria		127
38. Kenya	610	122
39. Spain		50
40. South Korea	76	40
41. Ghana	204	30
42. Puerto Rico	135	25
Total	2,153,252	3,657,373

(Adapted from FFI (1), 1973)¹

¹ Redmann, G. Aquaculture: Biotechnological Development, Institutional Roles, and Societal Impacts. Science and Public Policy Seminar, Harvard University, May, 1974, 89 p.

Other reasons for the Soviet emphasis on aquaculture, as cited by Ovchynnyk,⁷ are based on the following factors: Sales of fisheries products are quite profitable because the Russian people rely quite heavily on such products (unlike the United States where fish con-

⁷ Ovchynnyk, M. Soviet Fish Culture. Op. cit.

sumption is relatively low); the development of fish culture in ponds, lakes, reservoirs, and rivers compensates for industrial pollution; aquaculture, particularly pond culture, is under man's control which means that productivity relative to conventional fisheries is very high; according to Soviet sources, cultivation of fish is more profitable than agriculture (livestock husbandry). For example, the primary cost of 100 kilograms of cattle is cited as being 2.5 times higher than the primary cost of the same amount of fish. Accumulation of protein in fish from the same amount of food is two times higher than in cattle or sheep and 1.5 times higher than in swine or poultry.

Some comparative statistics on the contribution of fish culture to the Soviet economy as cited by Ovchynnyk⁸ are:

1. In 1959, state fish farms had 49,000 hectares available for fish culture. In 1966, 90,000 hectares were available;

2. Many new hatcheries (called "fish culture factories"), fish farms (called "fish nurseries"), and holding stations for the acclimatization of fish have been built throughout the Soviet Union during the 1950's and 1960's. In the Central Administration for Fish Culture there are 11 holding stations, 25 fish farms, five programs for improving spawning habitats, and two support stations. In the late 1960's, these establishments produced more than 10 billion young fish (compared with 6.5 billion in 1954) for release into lakes, rivers, reservoirs, and seas.

3. The introduction of polyculture (the cultivation of several species of fish in one pond for better utilization of natural food) has markedly increased unit productivity. Polyculture together with the use of artificial food has been found to increase productivity by a factor of 15 under certain conditions.

4. Transplantation of fish from one habitat to another is now practiced widely in the Soviet Union. Since the 1920's, more than 50 species of fish have been introduced into 1,225 lakes, 80 rivers, and 93 reservoirs. The catch of acclimatized fish between the mid-1950's and mid-1960's increased from 8.45 thousand to 16.47 thousand metric tons.

5. The culture of herbivorous (plant-eating) fish has received special attention in the Soviet Union during the 1960's. New methods have been developed to better reproduce these fish artificially through the use of pituitary-extract injections. As a result, a hundred million young herbivorous fish are produced each year and distributed over large territories of the U.S.S.R.. In 1967, a hatchery was under construction on the Volga River for the production of an additional 50 million herbivorous fish annually.

6. Hybridization of various fish species is receiving considerable attention in the Soviet Union. Most work has been done with carp. This approach increases productivity by improving growth and disease-resistance characteristics.

7. The Soviet Union is almost the sole supplier of sturgeon and caviar in the world. Industrialization has caused the catch of sturgeon to rapidly decrease. In 1960, the number of young sturgeon reared was 18 million. In 1965, it had increased to 52 million and was to increase even further to 170 million per year in the 1970's.

⁸ Ibid.

ORGANIZATION AND ADMINISTRATION OF AQUACULTURE

Fish culture is practiced throughout the vast territories of the Soviet Union from the maritime areas of the east to those of the west. All of the major inland seas are focal points for aquaculture. As of 1965, the administration of fish culture is under the All-Union Ministry of the Fisheries Economy. The Minister is appointed by the Supreme Council of the Soviet Union. There are 5 vice ministers and a board of about 13 advisors. Board resolutions become the orders of the Minister. The Ministry is subdivided into eight regional administrations.⁹

The kolkhoz (collective farm) is the basic production unit in the Soviet Union in which agriculture and aquaculture are practiced. Some kolkhozes are devoted to fisheries and fish culture only. Fish production on kolkhozes fluctuates considerably depending on climatic influences, kinds of fish cultivated, intensity of cultivation, etc. In 1965, the average Soviet fish farm produced 200–500 kilograms per hectare. However, around Moscow, it was 800 kilograms in 1963 and 9,800 kilograms in 1964 owing to the introduction of polyculture and supplementary feeding.¹⁰

As of the late 1960's, there were more than 300 scientists in various research and educational institutions under the Ministry of the Fisheries Economy. As provided by Ovchynnyk,¹¹ an account of these institutes involved with aquaculture is provided below:

RESEARCH INSTITUTIONS

All institutions of the Soviet Union, involved in research and training of specialists, can be divided into three groups. First are the scientific research institutes, with their branches and laboratories, under the Ministry of Fish Economy of the U.S.S.R., the Agricultural Ministry, and the like. The primary goal of these institutions is research in many fields of the fisheries industry including problems of fish stock restoration (fish culture, acclimatization, etc.). However, some of them have so-called "aspirantura" (post graduate study) where highly trained specialists are prepared.

To this group of institutions belong:

(1) All Union Scientific Research Institute of Fisheries and Oceanography (VNIRO) which headquarters in Moscow. It has many branches, but only some which deal specifically with fish culture and acclimatization of fish. To these branches belong: Caspian Scientific Research Institute of Fisheries and Oceanography (Kasp NIRO) in Astrakhan, with a sub-branch in the Baku, the Siberian branch, and others. The Moscow headquarters of the Institute is interested in problems of fisheries and oceanography and carries on studies of hydrology, chemistry of water, hydrobiology, ichthyology, morphology, embryology, physiology, fish diseases, etc., including fish culture and acclimatization of fish. It has about 400 scientists. Local branches are involved in projects of general or local interest. To the VNIRO belong the Georgian Scientific Research Fishery Station in Batumi,

⁹ Ibid.

¹⁰ Ibid.

¹¹ Ibid.

opened in 1967. It has the largest aquarium in the U.S.S.R. where experiments in ichthyology and fish culture will also be conducted.

(2) Azov-Black Seas Scientific Research Institute of Fishery and Oceanography (AzCherNIRO) (Restoration of valuable fish in Azov and Black Seas and their basins). (a) Odessa Laboratory of Marine Mammals and Ichthyology, Odessa.

(3) Atlantic Scientific Research Institute of Fishery and Oceanography (AtlantNIRO), Kaliningrad.

(4) Polar Scientific Research and Planning Institute of Marine Fishery and Oceanography (PINRO), Murmansk. (Acclimatization of Far East Salmonids in Barents and White Seas); (a) Archangel Branch, Archangel.

(5) All Union Scientific Research Institute of Pond Fish Culture (VNIPRKh), Moscow. (Selection of fish and various problems of pond fish culture.)

(6) State Scientific Research Institute for Lakes and Rivers Fish economy (GosNIORKh, previously VNIORKh), in Leningrad. (Fishery and fish culture of lakes and rivers.)

(a) Stalingrad Branch, in Stalingrad.

(b) Pskov Branch, in Velikija Luki. (Fish culture in natural conditions of lakes, ponds, and rivers, especially treatment of lakes with chemicals.)

(c) Ob-Tazovsk Branch, in Khanty-Mansijsk. (Fisheries economy in the Ob-Irtysh basin.)

(d) Volgograd Branch, in Volgograd. (Sturgeon culture.)

(e) Saratov Branch, in Saratov. (Sturgeon culture, etc.)

(f) Ostashkov Branch, in Ostashkov (Fishery and fish culture in Selige Lake).

(g) Karelian Branch, in Petrozavodsk (Fish culture of Coregonids of Onega Lake and fish management of Karelian waters).

(h) Siberian Branch, in Krasnoyarsk (Fish culture of sturgeon, Salmonids, etc.)

(i) Yakutsk Branch, in Yakutsk

(j) Novosibirsk Branch, in Novosibirsk

(7) Ukrainian Scientific Research Institute of Fish Economy (UktNIIRKh), Kiev (Pond fish culture, acclimatization of Coregonids, sturgeon, herbivorous fishes in Ukraine; crayfish culture)

(8) Azov Scientific Research of Fish Economy (AsNIIRKh) (Sturgeon culture). (a) Krasnodar Branch, Krasnodar (Cultivation of herbivorous fish in rich fields, sturgeon culture, etc.)

(9) Byelorussian Scientific Research Institute of Fish Economy (BelNIIRKh), Minsk (Pond fish culture, acclimatization of herbivorous fish, etc.)

(10) Kazakh Scientific Research Institute of Fish Economy (KazNIIRKh).

(a) Aral Branch (Acclimatization of fish in Aral Sea)

(b) Altai Branch

(11) Siberian Scientific Research of Fish Economy (SibNIIRKh). (a) Krasnoyarsk Branch, Krasnoyarsk. (Fish culture, acclimatization of fish and invertebrates from Baikal Lake to other waters of Siberia)

(12) Central Scientific Research Institute of Sturgeon Culture (CINORKh). (a) Azerbaidjan Branch.

(13) Pacific Scientific Research Institute of Marine Fishery and Oceanography (TINRO), Vladivostok

(a) Amur Branch (Technique of artificial propagation of various species of fish)

(b) Sakhalin Branch (Culture of *oncorhynchus gorbuscha* and *O. kerta*)

(c) Kamchatka Branch

(d) Magadan Branch

To the second group belong the institutes and laboratories under the supervision of the U.S.S.R. Academy of Sciences or Academy of Sciences of the Soviet Union. Institutions and organizations of this group also work out many problems of fish culture, transplanation of fish and invertebrates etc., but basically, from a theoretical point of view. In many of these institutes training of the highest quality specialists is carried out. To this group belong the following:

(1) Academy of Sciences of the U.S.S.R. (AN SSSR) Moscow. Institutes and branches:

(a) Institute of Animal Morphology, Moscow. (Work out many problems of fish culture)

(b) Institute of Oceanography, Moscow.

(c) Zoological Institute, Leningrad.

(d) Limnological Institute of Siberian Branch of the U.S.S.R. Academy of Sciences. (Incubation of Lake Baikal Coregonids.)

(e) Murman Institute of Marine Biology of the ANSSSR, Murmansk (study of acclimatization of Far East salmon in Barents and White Seas)

(f) Karelian Branch of AN SSSR, Petrozavodsk

(g) White Sea Biological Station, Archangel.

(h) Sevastopol Biological Station of, AN SSSR, Sevastopol.

(i) Institute of Reservoirs, AN SSSR, Borok Yaroslav Province. (Study formation of ichthyofauna in new reservoirs)

(j) Yakut Branch, AN SSSR, Yakutsk.

(k) Komi Branch, AN-SSSR, Syktyvkar.

(l) Dagestan Branch, AN-SSSR, Makhachkala. (Fish management of the waters of Dagestan Autonomous S.S.R.)

(m) Ichthyological Commission of the Academy of Sciences of the U.S.S.R..

(2) Academy of Sciences of the Ukrainian S.S.R., Kiev.

(a) Institute of Hydrobiology, Kiev. (Cultivation of carp in jar) and its Odessa Biological Station, Odessa.

(b) Institute of Biology of South Seas, Odessa Branch, Odessa.

(c) Institute of Zoology, Kiev.

(3) Azerbaidjan Academy of Sciences, Baku. (a) Institute of Zoology. (Study acclimatization of invertebrates as food for fish.)

(4) Kazakh Academy of Sciences, Alma-Ata.

(a) Institute of Zoology.

(b) Institute of Ichthyology and Fisheries; Altai Branch, Ust-Kamenogorsk (Fishery and fish culture in Balkhash Lake, etc.)

(5) Academy of Sciences of the Uzbek S.S.R., Tashkent. (a) Karakalpak Branch. (Fish culture and acclimatization of fish.)

The following academies also have participated in study of fish culture problems on territory of the named Soviet republic.

- (6) Academy of Sciences of the Kirghiz SS Republic, Frunze.
- (7) Academy of Sciences of the Georgia S.S.R., Tbilisi.
- (8) Academy of Sciences of the Armenian S.S.R., Yerevan; is Sevan Hydrobiological Station. (Culture of Lake Sevan trout)
- (9) Academy of Sciences of Latvian S.S.R., Riga.
- (10) Academy of Sciences of the Lithuanian S.S.R., Kaunas.
- (11) Academy of Sciences of the Tadzhik S.S.R., Stalinabad.
- (12) Academy of Sciences of the Turkmen S.S.R., Ashkhabad.
- (13) Academy of Sciences of the Uzbek S.S.R., Tashkent.
- (14) Academy of Sciences of the Estonian, S.S.R., Tallin.

The third group consists of universities, institutes, and other higher educational establishments. While the primary aim of these institutions is the training of specialists in various fields, some of them concurrently study problems of fish culture and its related areas. These include:

- (1) Moscow State University, Leningrad: Institute of Biology and Soil; Department of Ichthyology (Theoretical bases of fish culture); Zoological Museum.
- (2) Leningrad State University, Leningrad: Institute of Biology (Cultivation of Salmonids); Department of Ichthyology and Hydrobiology.
- (3) Kiev State University, Kiev; Department of Zoology and Ichthyology.
- (4) Dnepropetrovsk State University, Dnepropetrovsk; Hydrobiological Institute.
- (5) Kaliningrad Higher Technical School for Fish Industry, Kaliningrad; Riga Branch, Riga.
- (6) Perm State University, Perm.
- (7) Byelorussian State University, Minsk.
- (8) Lvov State University, West Ukraine.
- (9) Kharkov State University, Kharkov, Zoological Institute.
- (10) Voronezh State University, Voronezh. (Fish economy of Don River.)
- (11) Pskov Pedagogical Institute, Pskov. (Embryological and post embryological development of fish.)
- (12) State University of Gorki, Gorki. (Feeding of fish cultivated in ponds.)
- (13) Irkutsk State University, Department of Vertebrate Animals, Irkutsk. (Restoration of certain fish species in Lake Baikal, etc.)
- (14) Far Eastern State University, Vladivostok. (Fish culture in Far East.)

Not every educational institution mentioned above trains specialists in the field of fish culture per se. Specific preparation of such specialists is carried out in the following establishments:

- (15) Timiriazev Agricultural Academy of Sciences, Moscow. It has a Department of Fish Culture. For training of fish culturists (technicians), the Academy also regularly organizes 3-month or 1-month courses for study of fish culture techniques. During recent years, the Department of Pond Fish Culture prepared 12 "candidates of sciences" in the field of fish culture (equivalent to Sc.D), as well as more than 300 specialists and 150 "brigadiers" (technicians) for fish culture farms; likewise for kolkhozes and sovkhoses (state agricultural farms) which have ponds.

(16) Astrakhan Technical Institute of Fish Industry and Economy. (ATIRPKh) Astrakhan. (Prepares specialists in ichthyology and fish culture.)

(17) Kaliningrad Technical Institute of Fish Economy (KTIRKh), Kaliningrad. Prepares specialists in ichthyology and fish culture.

(18) Technical Institute of Fish Industry and Economy of Far East, Vladivostok. Prepares ichthyologists and fish cultures.

(19) All Union Correspondence Training Institute of Food Industry; Faculty of Ichthyology and Fish Culture.

(20) Kherson Technical School of Fish Culture, Kherson, Ukraine.

To a separate group of fish culture institutions belong the following:

(1) Central Station for Acclimatization (CPAS). (Transportation of fishes from one water to another; now attention is given to transplantation of the eel to the waters of the U.S.S.R.).

(2) Kazakh Republic Station for Acclimatization. (Works on acclimatization of invertebrates as a food for fish.)

(3) Inter-kolkhoz Institute, Khabarovsk (opened 1966). (Consultation in Current problems of fish culture and fishery for kolkhozes of the Far East.)

(4) Azov-Black Seas Fish Culture Biological Laboratory, Kerch. (Fish culture and acclimatization of fish.)

(5) Karel Acclimatization Station, Petrozavodsk.

(6) Kura Experimental Hatchery for Sturgeon Culture, on Kura River, Krasnodar Territory.

ALGAE CULTURE

In many foreign countries, most notably the Soviet Union, the artificial cultivation of aquatic plant life contributes substantially to the national economy. In the Soviet Union, single cell algae, known as *Chlorella* and *Scenedesmus* are cultivated on an industrial scale. In contrast, there is little research and exploitation of these algae in the United States.

While the cultivation of algae dates back to before the turn of the century, the most intensive research on the technology of algae culture has occurred since World War II. In the United States, research on the subject was most intense during the 1950's, declining in emphasis from the 1960's to the present time. At the same time, intensive research initiated in the Soviet Union, Japan, and East European countries in the 1950's has continued to date. The literature on algae culture is extensive. A recent Soviet monograph contains 193 citations in the bibliography (135 Russian and 58 Western).¹² The heavy emphasis on algae culture in the Soviet Union and East European countries has gone largely unnoticed in the United States.¹³

Chlorella, *Scenedesmus*, and a few other varieties of protococcal microalgae are attractive objects of mass cultivation for a number of reasons. First, they are distinguished by their high nutritional content, consisting of 50-60 percent protein, 30-35 percent carbohydrate, and 7-10 percent fat. They are also rich in various vitamins.^{14 15}

¹² Muzafarov, A.M. et al. *Chlorella: methods of mass cultivation and applications*. Tashkent, 1974, 129 p. (FRD Abstract No. 2293.)

¹³ The contributions of Mr. Joseph Rowe of the Federal Research Division, Library of Congress to this section of the study are gratefully acknowledged. Mr. Rowe provided all of the little-known source material on Soviet algae culture.

¹⁴ Ibid.

¹⁵ Kaz'min, V.D. *Azure field Moscow*, "Znaniye" Publishing House, 1974, pp.15-30 (in Russian).

Second, the many strains of fresh-water algae are extremely productive under intense cultivation conditions. Between April and October, an artificial algae culture basin 2.5 acres in size with water 10 to 15 centimeters deep will yield about 30–50 tons of dry mass.¹⁶

Basins or special ponds for the artificial cultivation of algae can be constructed in virtually any region on the Earth, even in areas not suitable for agriculture such as arid or desert regions. Cultivators in the Soviet Union are constructed on the roofs of homes or integrated into agricultural and industrial complexes.¹⁷

Microscopic algae are not only highly productive but are distinguished from conventional agricultural plant forms by a number of features. Their most attractive characteristic is that cultivation is a uniquely controllable process. Complete automation of cultivation and harvest is possible. Moreover, given an artificial microclimate, they can be cultivated the year around. Another attractive feature of algae is that there is little waste in the yield of biomass. Only about 9–10 percent of the body of the cell is considered to be waste product.¹⁸

While the nutritional potential of algae is quite attractive, there are a number of problems involved with utilization. First, the harvested algae biomass is not particularly palatable to either humans or animals and is rather difficult to digest. This has rendered algae an unattractive candidate, at least for human food. Second, their utility as an exclusive animal feed is somewhat limited and they are used as an additive in conventional animal feeds. Considerable research is underway in the Soviet Union to solve these problems. In the central Asian part of the Soviet Union, where there is little agriculture but considerable fossil fuel exploitation, algae are successfully cultivated on an industrial scale and contribute substantially to the local economy. The Uzbek Animal Husbandry Scientific Research Institute has developed a device for the 24-hour cultivation of algae. It is estimated by scientists in that institute that 50 tons of algae suspension are sufficient to feed 5,000 head of cattle and 12,000 to 15,000 pigs. Another Soviet scientist believes that only 100 grams of *Chlorella* are sufficient to satisfy the daily vitamin requirements of the average human body.¹⁹

Chlorella is now used for livestock and poultry farming in the Ukraine, Turkmenia, Kazakhstan, and Uzbekistan. The feed enterprises of the Uzbek Ministry of Sovkhozes (state farms) were the first to use algae suspensions of livestock feeding. In 1972, they produced 22,000 tons of suspension. Natural gas is being used for mass cultivation. Byproducts from the natural gas industry in the form of heat and carbonic acid, the latter of which is later converted to carbon dioxide, have proven highly effective in the year-round cultivation of *Chlorella* in open tanks. By 1975, it was planned that more than 40 livestock enterprises in Uzbekistan be equipped with facilities to cultivate, harvest, and use *Chlorella* as a livestock feed. Also planned were large cultivation complexes capable of producing 150 to 200 tons of suspension per day.²⁰

¹⁶ Ibid.

¹⁷ Muzafarov, A.N. *Chlorella*, Op. cit.

¹⁸ Ibid.

¹⁹ Unsigned. Soviet *Chlorella* research. *Krasnaya Zvezda* (U.S.S.R.), June 7, 1973, p. 4 (FRD Abstract No. 1307).

²⁰ Unsigned. Burgeoning Soviet *Chlorella* farming. *Pravda* (U.S.S.R.), Mar. 28, 1973, p. 3 (FRD Abstract No. 1196).

There continue to be accounts in Soviet newspapers about the use of algae for poultry and livestock feed. In one poultry farm, the algae is cultivated in 25 metallic bins. Three men are required for the maintenance of some 5 tons of suspension to support 150,000 chickens. Egg productivity has increased 2.3 percent and growth has been significantly accelerated. Cows are also given up to 8 kilograms of *Chlorella* suspension daily.²¹

In the region of Tbilissi, the cost of producing 1 cubic meter of *Chlorella* in the first year was 3.5 rubles.²² When used as a feed, it increased the body weight of cattle and pigs by 10 to 12 percent. All outlays for equipment were paid for within a year. There are now plans to build some 60 *Chlorella* cultivation stations throughout the U.S.S.R.²³

According to the Institute of Economics, Academy of Sciences, Uzbek S.S.R., the use of *Chlorella* as an animal feed since 1963 has resulted in a 250 million ruble clear profit per year.²⁴

Besides its use as a livestock feed, other applications of algae are being investigated in the Soviet Union and East European countries. A Soviet health resort uses a *Chlorella* extract to treat serious cases of skin disease. In Czechoslovakia *Chlorella* is being used to treat burns and other afflictions. It is being used for fish farming in the Soviet Union as a source of food for herbivorous fish and for sewage treatment. According to Soviet Scientists, prospects are good for developing new food products for man, although extensive research is still needed in this field. Finally, the Soviet Union is vigorously pursuing the development of biological life support systems for future manned spacecraft in which *Chlorella* will be the critical link, producing both oxygen and nutrition.^{25 26 27}

From the above, it is evident that algae cultivation is already making a significant contribution to Soviet agriculture as a livestock feed and that its future role in other aspects of the Soviet economy can be expected to increase in the future.

DISCUSSION AND SUMMARY

According to Ovchynnyk,²⁸ future trends in fish culture have been projected in Soviet economic plans (5-year plans). Future emphasis in fish culture will be on the following subjects:

1. Improvement of biological technology, particularly with regard to sturgeon culture;
2. Increasing the quantity and quality of young fish released in the wild by increasing the time of rearing in hatcheries to increase survivability after release;

²¹ Unsigned. Rural Life (U.S.S.R.), Dec. 27, 1974, p. 2.

²² One ruble equals approximately U.S. \$1.11 according to the official exchange rate.

²³ Unsigned. Soviet Russia. Oct. 11, 1974, p. 4.

²⁴ Unsigned. Technology and Youth (U.S.S.R.), December 1974, 24-25.

²⁵ Unsigned. Soviet *Chlorella* research. op. cit.

²⁶ Unsigned. Burgeoning Soviet *Chlorella* farm. op. cit.

²⁷ Unsigned. A cosmonaut in symbiosis with *Chlorella*. New Scientist. August 15, 1974, p. 376.

²⁸ Ovchynnyk, M. Soviet Fish Culture. Op. cit.

3. Better planning of the locations and times for the release of young fish into the wild;

4. Wider application of polyculture;

5. Increasing emphasis on selective breeding and genetics (in unselected breeding of carp, one female can yield 14.4 metric tons of fish while from improved strains, the yield can be increased to 137 metric tons per female;

6. Cultivation of fish in rice fields. According to Soviet specialists, this practice not only improves the rice crop but can yield about 50 metric tons of fish annually.

7. Use of thermal effluent from hydroelectrical plants. This approach will permit the year round cultivation of fish. Prospects are particularly good for rearing fish in "thermal reservoirs" where fish are placed in floating, netted tanks or basins. Experiments in 1963 demonstrated that in 1 year, 60 kilograms of fish could be obtained from 1 square meter of tank;

8. Increasing the number of excavators, tractors, and bulldozers for the construction of new ponds;

9. Cultivation of herbivorous fish will receive increased emphasis. In 1964, ponds on state fish farms produced 350 metric tons of fish, in 1965, 1,200 tons, and in 1966, 2,500 tons. By the 1970's, plans called for the production of 10,000 tons annually;

10. Transplantation of fish and other aquatic life. Efforts will be made to transplant herbivorous fish into more areas of the country. Transplantation experiments with shrimp, lobster, and other invertebrates will also be stressed. Aquatic plantlife and invertebrates will be transplanted from one locale to another to provide natural food for fish. Methods of transporting anesthetized fish will be developed.

11. Developing electrical underwater fences to protect young fish from entrapment and injury in hydroelectrical and irrigation situations;

12. Intensified research on water pollution. This problem has become acute with increasing industrialization;

13. Construction of large fish hatcheries and farms with an area of 10,000 hectares. Such areas are available in shallow, periodically dry parts of reservoirs and deltas of rivers. In the delta of the Volga River, 65,000 hectares can be used for construction of fish farms;

14. Construction of lake fish farms, which by the 1970's could cover an area of about 500,000 hectares;

15. Increase the catch of fish in lakes, rivers, and reservoirs to reach 27,000 metric tons or more annually by the 1970's;

16. Raising of about 138,000 metric tons of fish in state farms planned by the 1970's. New and reconstructed farms will be used for this purpose. In addition, in order to supply the industrial centers with fresh fish, special farms were built between 1966 and 1970 to produce 35,100 tons of fish per year;

17. The Ministry of Energy and Electrification and the Ministry of the Fisheries Economy were to build 10 hatcheries between 1966 and 1971 to compensate for the damage done by hydroelec-

tric plants. General capacity of these hatcheries was projected to be 318 million young fish per year.

There is evidence that progress has been significant since the above plans were formulated in the 1960's. At the Pacific Research Institute of Fisheries Economy and the Institute of Marine Biology in Vladivostok, a series of experiments are being carried out to breed many marine fish and plants such as marine algae, scallops, and oysters. Considerable progress has been made in the artificial breeding of the Atlantic and Pacific salmon. Several nurseries of the breeding of these fish are producing millions of fry annually. The commercial exploitation of artificially bred salmon is increasing. Along with Japan and the United States, the Soviet Union is now one of the largest producers of salmon fry in the world.²⁹

In 1972, an experimental farm was established in Posiet Bay near Vladivostok for the cultivation of scallops, oysters, and various species of fish. In the near future, this region will become one of the largest centers for the development of fish culture in the Soviet Union.³⁰

In Taganrog Bay of the Azov Sea and along the Baltic coast, fish have been grown in sea ponds for more than 2 years. Each acre of water has yielded up to 12 metric tons of herbivorous fish, carp, and a sturgeon hybrid. Trout grown in brackish ponds along the Baltic Sea develop 1½ to 2 times faster than in fresh water.³¹

A whole network of marine fish breeding farms will soon be built in the Soviet Union in order to reduce the commercial fishing of certain depleted and endangered species. Emphasis will be placed on the artificial breeding of marine fish to supplement natural populations as well as the commercial exploitation of captive stocks.³²

Soviet officials have predicted that maritime areas will be utilized for aquaculture "up to a depth of 100 yards and up to 1 mile off shore by the end of the century".³³ These ambitious plans will require substantial research and development investment by the Soviet Government. Such an investment will evidently require fiscal support far greater than any projected U.S. involvement in aquaculture, which is presently less than \$10 million per year. It would therefore appear that the future contribution of aquaculture to the Soviet economy, already large, will increase substantially. Whether the increased emphasis on aquaculture will be at the expense of Soviet fisheries programs is open to speculation. It is clear, however, that the Soviet emphasis on aquaculture anticipates that the production potential of fisheries will continue to dwindle while the demand for fisheries products will continue to increase. The Soviets have chosen aquaculture to fill that projected supply-versus-demand gap.

²⁹ Doryshev, S. *Aquaculture in the Soviet Union*. Op. cit.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

³³ Unsigned. *Marine Fish Management*. October 1975, p. 3.

SOVIET POSITION ON THE COASTAL ENVIRONMENT

A SURVEY OF RECENT LITERATURE

(By Harvey R. Sherman¹)

The Baltic, Black, and the Caspian Seas, and the Sea of Okhotsk, together with the long, remote reaches of the Arctic Ocean, constitute the sea coasts of the U.S.S.R., and provide its access to the world's oceans. But, for practical purposes, its territorial waters can be considered to be the littorals of those four major seas, plus the Barents Sea area in the Arctic.

Its great rivers have traditionally held a prominent place in Russian thought; these were the principal routes of commerce, and, more recently, the sites of industrial expansion. The Ural and the Volga, which flow to the Caspian; the Don and the Dnieper, flowing to the Black Sea; and the Dvina, whose waters empty into the White Sea, are among the principal waterways serving the nation's industry and commerce. They have also become focal points in the country's efforts to combat pollution. By extension, that effort constitutes a major part of the Soviet environmental concern for its coastal areas.

A growing literature details environmental deterioration of the U.S.S.R. coastal regions. Goldman cites examples of mismanagement that has caused serious erosion of the shores of the Black Sea and contributed to pollution of the Caspian.² Keith Bush states that, although the situation with respect to the rivers of the U.S.S.R. "has not reached the levels of pollution of, say, the Rhine or the Mississippi, the great rivers of the Soviet Union are being rapidly turned into sewers: for instance, it has been estimated that the Volga alone carries half of the country's industrial effluents into the Caspian Sea."³

There is an "upbeat" flavor to most current Soviet literature on the environmental condition of its rivers and coastal regions. Beyond a few introductory sentences adverting to an environmental problem, Soviet writers generally launch rather quickly into detailed description of current or planned programs of environmental improvement of conditions that sometimes have to be inferred. Not surprisingly, these descriptions are capped by optimistic outlooks, hortatory statements of purpose, and assurances of success. I. Avashko, for instance, in an article concerning oil on the beaches at Odessa in late 1974, states that, "fortunately, in our country, we almost use the past tense when talking about the pollution of the seas with oil products."⁴ A recent article by a member of Latvia's Institute of Biology states that pollutants in the Bay of Riga "include oil, petroleum products

¹ The author is a specialist in environmental policy, with the Environmental and Natural Resources Policy Division of the Congressional Research Service, Library of Congress.

² Goldman, Marshall. *The Spoils of Progress: Environmental Pollution in the Soviet Union*. Cambridge, the MIT Press, 1972.

³ Bush, Keith. *The Soviet Response to Environmental Disruption*. In: *Environmental Deterioration in the Soviet Union and Eastern Europe*. New York, Praeger Publishers, 1974. (Ivan Volgyes, ed.)

⁴ I. Avashko. A tanker at the sixth berth. *Rabochaya Gazetta* (Kiev) Nov. 22, 1974. (Joint Publications Research Service. No. 63865; Translations of Environmental Quality No. 74.)

and phenols, which are resistant to biochemical oxidation," but rather quickly follows this description with the statement that the Bay "is one of the cleanest areas of the Baltic region."⁵

Some of the literature is more candid and to the point. Shkolyarenko in 1974 described environmental deterioration in the Donetsk, particularly the Kal'mius, a small river:

Because of pollution and silting up of the main channel and the tributaries as well as the absence of the necessary amount of vegetation, the river has become unsuitable for recreation and sports fishing. Reasons for this include the plowing up to the banks of the river and its tributaries, the dumping of mine wastes and trash, the discharge of domestic and industrial wastes into the floodlands, and the lack of an adequate vegetative cover.⁶

Tanabash, writing on the Sea of Azov in 1974 says that:

Now one can frequently hear the question of whether the Sea of Azov will ever be as it once was. It is not easy to answer this. Let us just say that serious measures are being taken to increase its productivity . . . This problem of eliminating the discharge of unpurified waste is being resolved.

Tanabash concludes his article with a statement which may indicate a direction in Soviet thinking on its coastal environment:

The problem of the Sea of Azov is not exhausted by measures for purification of waste waters. What about processes involved in landslides? And maintaining the integrity of the soil cover? The shores of the Sea of Azov must be assimilated, taking into account implementation of antilandslide measures and the demands of the Ukrainian SSR Gosstroy."⁷

In terms of current definition of coastal zone management, as applied to recent U.S. legislation, the Soviet effort in this area might be described as "traditional." A recent report describing the history of coastal zone management in the United States notes:

Traditionally, coastal zone management efforts separated approvals for port development, drainage of wetlands and growth of communities, from controls over the projects, such as dredging restrictions and water quality controls. Different agencies dealt with different types of controls. . . . Traditional coastal zone management also focused on a single resource at a time, such as fish, agriculture, ground water, or oil production, and activities lacked long-term goals.⁸

W. H. Butler, in an article concerning the Soviet continental shelf and antipollution legislation, describes the 1968 edict of the Presidium of the U.S.S.R. Supreme Soviet, along with subsequent legislative action. His analysis indicates that jurisdiction over exploration and ex-

⁵ R. Laganovska. The water of the Bay of Riga. *Sovetskaya Latvija* (Riga) Aug. 15, 1975. (JPRS No. 65819; Translations of Environmental Quality no. 91).

⁶ G. Shkolyarenko. Protect Donetsk water resources from extinction. *Stroitel'stvo i Arkhitektura* No. 5 (Kiev) May 1974. (JPRS No. 62464; Translations of Environmental Quality No. 42).

⁷ G. Tanabash. Sea of Azov must be kept free of pollution. *Rabochaya Gazetta* (Kiev) April 26, 1974. (JPRS No. 62186; Translations of Environmental Quality No. 37).

⁸ 93d Cong. 2d Sess. Senate. Outer Continental Shelf Act and Gas Development and the Coastal Zone. Committee on Commerce—National Ocean Policy Study. Washington, U.S. Govt. Print Off., Nov. 1974. (Committee Print) p. 77.

plotation on the shelf was fragmented among numerous agencies, such as the Ministry of Geology, the Ministry of Defense, the Committee of State Security, the Hydrometeorological Service, and the Ministry of Fisheries.⁹ With respect to legislation relating specifically to pollution control, Butler notes that a joint Government-Communist Party decree instructs ministries and departments at all levels "to implement a vast range of environmental measures, including marine pollution. Presumably, disputes among state agencies in this area are handled by State Arbitrazh, a system of tribunals. These tribunals have "issued instruction that financial claims linked with the rational use of natural resources are to be heard with full regard to the applicable conservation law as well as to the civil merits."¹⁰ Butler also notes a February 1974 law which appears to put teeth into the Soviet effort to control pollution of internal sea and territorial waters "as a consequence of navigation." But this appears not to apply to land-based sources of pollution, and falls more into the category of laws and regulations designed to conform U.S.S.R. shipping and port procedures to national commitments to international oil pollution agreements.

As noted in a previous study, the U.S.S.R. over the past decade or more has given increased attention to the protection of territorial waters and coastal regions.¹¹ These measures included treatment plants in the principal river basins to reduce land-based pollution, rules and regulations relating to construction and operation of installations on the continental shelf, and programs relating to shipping and port operations. Most of the latter appear to be designed to conform U.S.S.R. shipping and port procedures to its commitments under the oil pollution conventions of the Intergovernmental Maritime Consultative Agency.¹²

There is little in the literature that suggests the existence of a comprehensive policy for the coastal environment. The reason for this may be found within the context of overall Soviet attitudes toward the environment, combined with some peculiarities of that government's system of management. As to the former, the Soviet attitude is not markedly different from that demonstrated in most industrialized countries; the latter—the organization of government—provides opportunities for the formulation and implementation of such a policy, as well as the downgrading of an effort, depending on priorities set by the government.

Keith Bush, in a paper written in 1974, describes in considerable detail Soviet attitudes toward the environment in general, and from his observations, one may infer its position on its coastal zones.¹³

Several factors must be considered. Basic to understanding is the fact that economic growth has historically been a prime objective of Soviet policy, and, as Bush states it:

⁹ Butler, W. E. *Soviet Continental Shelf and Anti-Pollution Legislation*. International and Comparative Law Quarterly, Vol. 25, January 1975.

¹⁰ *Ibid.*

¹¹ See: *Soviet Marine Pollution Programs*. In: 94th Cong., 1st. sess. Senate. *Soviet Ocean Activities: A Preliminary Survey*. Committee on Commerce—the National Ocean Policy Study. Washington, U.S. Govt. Print. Off. April 30, 1975. (Committee Print).

¹² Belichenko, Yu. P. et al. *The protection of ocean waters against pollution*. Rybnoye Khozyaystvo No. 12. (Moscow) 1973. (JPRS No. 61111); *Translations of Environmental Quality* No. 8.

¹³ Bush, op. cit.

The prime criterion of an enterprise's performance and the main yardstick for awarding premia remains the growth of gross output: when this conflicts with ecological measures, the outcome is predictable. Material incentives for preserving the environment are marginal.¹⁴

A second key to Soviet attitudes toward the environment is its organization of measures to counter environmental deterioration. Again, Bush observes:

Despite the existence of a plethora of organizations and societies concerned with protecting the environment, in many instances the ultimate responsibility for preserving natural resources lies with the agency charged with exploiting them. A one-sided conflict is thus inevitable. Moreover . . . the vertical structure of the economy may impede the flow of information concerning environmental disruption and reduce the effectiveness of counter-measures.¹⁵

Bush's observation is bolstered in a 1974 article discussing pollution abatement measures on the Volga and Ural Rivers, which states that a recent appraisal by the RSFSR Council of Ministers indicated that:

The technical documentation for construction of many water protection objects is being developed with a great deal of delay. Capital investments and material and technical resources are envisioned in insufficient quantities and the money allotted for these purposes is not being fully used because of poor organization of construction . . .¹⁶

The Council of Ministers review cited the Ministry of Cellulose and Paper Industry for "doing an especially poor job" of constructing water protection facilities, and the U.S.S.R. Ministry of Power and Electrification for "not taking the necessary measures to insure prompt construction of water protection objects." A number of industrial enterprises were charged for not having carried out assignments for starting up purification installations.

The decree that was issued took note of the lack of discipline of a number of Union ministries in carrying out assignments set by the decree of the CPSU Central Committee and the U.S.S.R. Council of Ministers of March 13, 1972 for construction of purification installation in Permskaya Oblast . . .¹⁷

A third factor to be considered as contributing to the Soviet view on the environment is the attitude of the citizenry of the country. According to Bush, most Russians "are at least apathetic" about the environment. It is explained that this attitude results from early inculcation that "the earth is big enough to take care of everyone." Quoting a Russian writer, Bush states that Soviet students have traditionally been imbued with an aggressive attitude toward nature, with emphasis put on "the struggle with nature, the taming of nature, and the transformation of nature." He goes on to say:

¹⁴ Bush, op. cit. p. 31.

¹⁵ Bush, op. cit. p. 32.

¹⁶ Cleaning up the Volga and Ural Rivers. Sovetskaya Rossiya (Moscow) May 30, 1974. (JPRS 62484; Translations of Environmental Quality, No. 43).

¹⁷ Ibid.

To be sure, the inhabitants of Baku or Riga resent the film of oil that covers them when they emerge from a dip in the sea, but they would not dream of manifesting their resentment with acts of "ecotage" directed against the offending derricks or tankers. Instead, this anger is channeled into the docile "public nature protection committees," or oily bathers are asked to telephone their complaints to, say, the Riga Zonal Water Inspection of the Ministry of Land Improvement and Water Resources of the Latvian SSR.¹⁸

More than one writer has alluded to the abundance of legislation in the U.S.S.R. to conserve resources and control environmental deterioration. But the effectiveness of such legislation appears to be no more impressive than in many Western countries. Indeed, there are many instances in which new legislation covers the same ground as an earlier act. "Frequently," says Bush, "the impotence of earlier legislation is merely implied by the passing of new laws covering much of the same ground."

Recent Soviet literature indicates that, although the country's record on environmental protection in general, and the coastal environment in particular, has been mixed, and though there appears to be no single focal point in law or government organization concentrating on the coastal zone, there is growing pressure for a comprehensive approach. A report by Tass in late 1973 gives an optimistic picture of measures to reduce oil pollution in harbors and coastal areas throughout the country.¹⁹ A 1974 article describes the "Second Inter-departmental Scientific-technical Conference on problems of complete use of the water resources and protection of nature along the lower Dnieper and in the Dnieper-Bug Bay."²⁰ Several articles concentrate on efforts to clean up the Volga and Ural river basins, and an international effort by Baltic nations to improve conditions of that sea. A recent decision by the government to close the Kerchenskiy Channel between the Black Sea and the Sea of Azov has received attention in the current literature.²¹ That plan was devised to reduce excess salinity and reduced water levels in the Sea of Azov, both of which threaten valuable species of fish.

Soviet policy on coastal areas, in spite of difficulties noted by several observers, appears to be moving toward a unified approach. While much of its current effort appears to focus on commitments under international oil pollution conventions,²² a Kiev publication in August 1974 describes the tasks of geology organizations in preventing further pollution of underground waters adjacent to the Black and Azov Seas, problems associated with irrigation in the Crimea, and measures (both

¹⁸ Bush, op. cit. pp. 25-26.

¹⁹ The drive to keep the ocean pure. TASS (Moscow) Nov. 26, 1973. (JPRS No. 61009; Translations of Environmental Quality No. 6).

²⁰ T. N. Atkarskaya. Conference on Problems of Complete Use of Water Resources and Protection of Nature Along Lower Dnieper and in Dnieper-Bug Bay. *Vodnyye Resursy* No. 4 (Moscow) 1974. (JPRS No. 64748; Translations of Environmental Quality No. 82).

²¹ Measures taken in the Azov Sea. *Moskovskaya Pravda* (Moscow) July 7, 1974. (JPRS No. 62793; Translations of Environmental Quality No. 49).

²² N.S. Goryunov and V. M. Shklovskiy, in an article "For the sea to be clean" (*Rybnoye Khozyaystvo*, No. 2; Moscow, February 1975) describe a decree of the U.S.S.R. Ministerial Council of Feb. 14, 1974 and a U.S.S.R. Supreme Soviet Presidium ukase of Feb. 26, 1975 which "instructed ministries and agencies to take measures to prevent the pollution of internal sea and territorial waters of the U.S.S.R. . . . by petroleum, petroleum products, and other substances harmful to people's health or to living resources of the sea . . ." (JPRS No. 64588; Translations of Environmental Quality No. 81).

successful and unsuccessful) to combat erosion and earthslides on the shores of the Black Sea.²³ In an article summing up industrial methods to reduce pollution, S. Parshenkov, Scientific Secretary of the Scientific Council on Problems of the Biosphere AS U.S.S.R., cites the construction of "670 purification complexes and installations capable of decontaminating more than 3 billion cubic meters of waste water per day" in the last decade, in the Volga and Ural basins alone.²⁴ However, at about the same time, a review of progress under a decree of the CPSU Central Committee and the U.S.S.R. Council of Ministers on improvements in the Volga and Ural basins, by the Commission on Housing and Communal Economy and Planning of Public Services of the RSFSR Supreme Soviet took note of "a number of shortcomings in the construction of water purification installations."²⁵

Environmental protection in the Soviet Union appears to be neither more nor less advanced than in other industrialized countries. Official statements make claims which are in effect countered by substantial legislation and exhortations to improve environmental conditions. Quite obviously, statements such as the one that environmental issues "have been at the center of attention of the Soviet state since the first days of its experience"²⁶ do not square with the majority of articles and reports, both official and unofficial, which are directed at serious environmental deterioration. Pollution of rivers feeding into coastal zones, oil pollution in the major seas, and erosion of coastal areas, appear to have resulted from the demands of economic growth, most of which has occurred over the past five decades. And while the official literature may cite coordinated management that takes proper account of environmental protection, there is enough evidence to force the conclusion that the imperatives of economic growth continue to make costly claims on the environment. All this notwithstanding, the literature of the past few years indicates that Soviet attitudes toward the environment have changed considerably, and corrective measures are being taken. If economic growth priorities permit, and to the extent that environmental improvement costs can be assimilated in that process, the Soviet environment, including its great river basins and coastal areas will show improvement in the future.

²³ S. V. Grigorovitch, et. al. Protect nature (Material for the field meeting of the Economic Club in Cherkassy). *Rabochaya Gazeta* (Kiev) August 23, 1974. (JPRS 63307; Translations of Environmental Quality No. 64).

²⁴ S. Parshenkov. Our resources, let us conserve them. *Sovetskiye Profsoyuzy* No. 18 (Moscow) September 1974. (JPRS No. 63418; Translations of Environmental Quality no. 64).

²⁵ In the Commission of the RSFSR Supreme Soviet. *Sovetskaya Rossiya* (Moscow) Oct. 31, 1974. (JPRS No. 63604; Translations of Environmental Quality No. 69).

²⁶ The Policy of the Soviet Union in the Area of Environmental Protection. Paper presented on Oct. 23, 1974 at Expo-74 in Spokane. *Politika Sovetskogo Soyuz V. Oblasti. Okhrany Okruzhayushchey Prirodnoy Sredy*. (Moscow) 1974 (JPRS No. 64946; Translations of Environmental Quality No. 84).

SOVIET UNDERSEA RESEARCH AND TECHNOLOGY

(By Christopher H. Dodge¹)

INTRODUCTION

Many chapters in this study have convincingly communicated the growing Soviet preeminence in the oceans in terms of the fisheries and merchant marine industries, oceanography, and most significantly, the Soviet Navy. This vigorous thrust into the open seas of the world is only a few decades old and reflects an often-stated Soviet goal to attain a predominant international status in ocean exploration and exploitation. As often articulated in this study, Soviet ocean policy is truly integrated, unlike the presently fragmented U.S. programs and the successes of this large and integrated policy have been particularly impressive, if not startling, in the past 2 decades.

What is commonly overlooked, however, is the anomaly of Soviet manned and unmanned undersea research and technology programs. For, juxtaposed against the successes briefly reviewed above, these programs have not kept pace with the Western world, and in particular, the United States.

As in Western countries, the major components of Soviet undersea research and technology can, for convenience sake, be subdivided into manned and unmanned research submersibles and submarines; underwater habitats, and shallow and deep diving by man in the open sea or inland waters as associated or distinct from the first two categories. The broad, public objectives of the Soviet undersea program, always expressed in civilian terms, have been to investigate undersea nutritional, chemical, energy, and mineral resource potentials and to evaluate man's role in the exploration and exploitation of these resources. This chapter will briefly review recent and continuing trends in Soviet undersea research and technology as compared with trends in Western countries. Soviet programs in aquaculture and associated marine biology research will be treated in a separate chapter.

SUBMERSIBLES

BACKGROUND AND HISTORY

Boylan²⁻⁴ who has reviewed some 900 published Soviet works on submersibles, habitats, and diving, provided the most complete history and chronology of Soviet submersible and research submarine develop-

¹ The author is an analyst in life sciences with the Science Policy Research Division of the Congressional Research Service, Library of Congress.

² Boylan, L. Underwater Activities in the Soviet Union. Informatics, Inc. Report, 1974, 77 p.

³ Boylan, L. Recent Soviet developments in undersea technology. *Marine Technology Society Journal*, No. 5, 1972, 41-43.

⁴ Boylan, L. Soviet-Bloc Submersible Development. Library of Congress. *Foreign Science Bulletin*, vol. 5, 1969, 1-55.

ment available in this country. Exerpts from the historical introduction to his most recent report are worthy of quotations:

"If one requires a point in time to which to attribute the official beginning of Soviet submersible development, then December 17, 1923 stands out as the best date. On that date, Lenin signed into law a decree founding the EPRON* diving and salvage organization, with F. I. Krylov appointed its first director. The first project undertaken by EPRON was the construction of the Danilenko diving chamber to be used in an attempt to salvage \$2 million in gold rumored to be lying on the bottom of Balaklava Bay. No gold was found, but Soviet submersible development was underway.

From 1923 to 1941, EPRON flourished as an organization and published a very respectable journal entitled "Epron." During the war, EPRON was renamed the Main Military River Administration, and was responsible for explosive ordnance disposal and salvage in the U.S.S.R.'s extensive system of rivers. After the war, this organization was absorbed by the Podvodrechstroy⁵ organization of the Ministry of the River Fleet to work on reconstruction of the war-damaged inland navigation system.

In the 1930's, Soviet interest in deep submergence seemed to increase. More and more articles on medical research involved in increasing the depth limits for hard-hat divers began appearing in Epron. An interesting sidelight in this respect was that the last article written by K. E. Tsiolkovskiy, the father of Soviet astronautics, was on the calculation of the depth limit of a deep submersible. Tsiolkovskiy died before he had a chance to approve the final edit of his article.

Later, in 1937, Yu. A. Shimanskiy, a full professor, a Corresponding Member of the Soviet Academy of Sciences, and a member of the editorial staff of Epron, published an article on the design on an untethered submersible intended for depths to 2,500 meters. The seriousness of the Shimanskiy project can be attested to in part by the fact that Academician A. N. Krylov was project consultant. It is not fully known why Shimanskiy's submersible was not built; however, the impending war was probably the determining factor. Shimanskiy eventually went on to become one of the foremost specialists in the theory and methods of calculating the strength of hull structures.

Historically speaking, the failure to build the Shimanskiy submersible either before or after the war could be considered the turning point in Soviet submersible development. Had this submersible been built, the Soviets would have had an impressive early lead in deep submergence and, influenced by the heady wine of success, Soviet submersible development could well have taken on different proportions than those to be reviewed below.

While the Shimanskiy submersible was not built, the concept lived on and was eventually embodied in a low-mobility vehicle called Gvidon, which made its appearance in 1970-71.

* Ekspeditsiya podvodnykh rabot osobogo naznacheniya—Expedition for special-purpose underwater operations.

⁵ Probably, Podvodnoye rechnoye stroitel'stvo—(Administration for) Underwater Construction in Rivers

In the postwar period, revived interest in submersibles began to emerge in the late 1950's, with the conversion of the research submarine *Severvanka* and the designing of the *Sever-1* (GG-57) diving chamber. Articles began to appear in Soviet newspapers and journals on plans for the development of bathyscaphs and other deep submergence vehicles. By the mid-1960's, a number of vehicles were on the drawing boards, and one, *Sever-2*, had a promised delivery date of 1965-66. This vehicle was finally delivered in mid-1971.

The most prominent group involved in submersible design is *Giprorybflot*,⁶ headquartered in Leningrad, with a branch in Klaipeda, Lithuania. This organization was established in 1931 and eventually was responsible for the designing of many research vessels and a number of the vehicles and submersibles to be discussed throughout this review. With few exceptions, *Giprorybflot* acts only as a design function responding to the requests of fisheries and oceanography oriented institutions throughout the Soviet Union. It evidently has no voice in establishing priorities or construction schedules for the vehicles under design.

In the late 1950's and early 1960's, many articles on Western achievements in submersible developments appeared regularly in Soviet publications. This served to forcibly demonstrate the development gap existing between the Soviet Union and the West in the area of undersea vehicles. In an attempt to coordinate research and design facilities involved in Soviet penetration into the sea, on April 14, 1960, the Oceanographic Commission of the U.S.S.R. Academy of Sciences established the Section for Underwater Research. Since its founding, the Section has sponsored a number of conferences devoted primarily to the development of undersea research vehicles and habitats. However, despite its impressive list of members and stated goals, it too seems to lack the decisionmaking capacity that will take a vehicle off the drawing board and put it in the water. This is not so true for the section's coordinating ability in developing and supporting habitat and sealab programs . . . "

In 1923, the first Soviet observation chamber was produced by *EPRON*. The chamber, designed by the famous Soviet engineer, G. Z. Danilenko, after whom it was named, was capable of accommodating up to three observers to depths down to 150 meters (450 ft.). The chamber was used for various salvage operations until about 1931.⁷ During the same general period, the United States and Great Britain were developing chambers of similar design.

During the 1930's the Soviets developed hard, one-atmosphere, articulated diving suits based on German and Italian design. These anthropomorphic suits probably permitted dives down to the 150-meter level at that time, although their utility was extremely limited because of their great weight and vulnerability to leaks.⁸

⁶ Gosudarstvennyy proyektyny institut rybopromyslovogo flota—State Planning Institute of the Fishing Fleet

⁷ *Ibid.*

⁸ *Ibid.*

In 1937, the first serious attempt to develop a true submersible was made in the Soviet Union. The two-man, 10.5-ton "Shimanskiy" submersible was to operate at depths down to 2,500 meters. However, the submersible was never constructed.⁹ Meanwhile, the American (Beebe/Barton) "bathyscaphe" had been taken to a record 1,000 meters (3,028 ft.) in 1934.¹⁰

The World War II years brought Soviet submersible research to an abrupt halt. Only after the war, in the 1950's did Soviet attention once again focus on underwater research vessels. In 1957, the Ministry of Fisheries granted approval for the transfer of a naval submarine to the All-Union Scientific Research Institute of Marine Fisheries and Oceanography. The submarine, named "*Severyanka*," was converted and recommissioned as a fisheries research vessel. After becoming operational in 1958, the *Severyanka*, manned by 6 scientists and a crew estimated to be about 50, made 10 cruises and remained active until about 1967. Since *Severyanka*, there have been a number of vague reports of other Soviet submarines reconfigured for oceanographic research or diving purposes. These reports have been difficult to verify.¹¹

The year 1957 also marked the completion of the design of the GG-57 or "Sever-I" tethered observation chamber. This small (2,368 kg) chamber was designed for depths down to 600 meters with one observer. The chamber was designed for fisheries research, as most Soviet submersibles to date allegedly have. It is believed that several variants of Sever-I have since been constructed and are still in operation.¹²

In response to the Atlantic Ocean Scientific Research Institute of Fisheries and Oceanography, a unique, hydrodynamic vehicle known as Atlant-I was constructed in 1963. The towed, bat-winged vehicle was designed to accommodate one pilot-observer in a prone position who could guide it down to depths of more than 100 meters. Between 1965 and 1966, Atlant-I made more than 100 descents in support of fisheries research. Although the vehicle is still in use, it has been complemented by Atlant-II, an improved variant.¹³

Soviet submersible development in the 1950's and 1960's was modest by Western standards. For by 1948, the Swiss (Piccard) and American (Barton) submersibles had been taken to depths exceeding 1,500 meters, while the greatest depth attained by a Soviet submersible in the 1950's was about half that value. Even by 1950, the Japanese "Kuroshio" submersible was operating at 200 meters. In 1953 and 1954, Swiss Piccard submersibles had been taken down to depths exceeding 3,000 meters; and in 1960, the Swiss submersible "Trieste," redesigned by the United States, was taken to a record 10,848 meters (35,800 ft.), a depth unequaled since by any submersible in the world. From that point on, the United States, France, and other Western countries were to support a virtual explosion of submersible develop-

⁹ Ibid.

¹⁰ Shenton, E. H. *Diving for Science: The Story of the Deep Submersible*. New York, W. W. Norton & Co., Inc. 1972, pp. 19-31.

¹¹ Boylan, L. *Underwater Research Activities in the U.S.S.R.* op. cit.

¹² Ibid.

¹³ Ibid.

ment throughout the 1960's which has yet to be even remotely challenged by the Soviet Union, which has continued to invest the bulk of its undersea technology resources in the development of advanced nuclear submarines.¹⁴

OPERATIONAL SUBMERSIBLES

Since the early 1960's, the Soviet Union has developed about 15 manned and unmanned types of undersea research vehicles. During the same period, the United States and other Western countries developed more than 60 such vehicles. In terms of technological sophistication and depth and operational capabilities, Soviet vehicles have not been particularly impressive by Western standards. The major characteristics of Soviet manned and unmanned submersibles are summarized in tables 1 and 2.

¹⁴ Shenton, E. H. *Diving for Science*. op. cit.

TABLE 1.—*Operational Soviet manned submersibles and submarines*
[1957 to present]

Vehicle	Sponsor	Year developed	Depth capability	Crew	Status and comments
Sever-I	PINRO, ¹ Murmansk.	1957	600 (m)	1	Operational; tethered observation chamber; several variants believed developed.
Gvidon	VNIRO, ² Moscow.	1970	250	2	Operational; semi-autonomous, untethered observation chamber.
Atlant-I	AtlantNIRO, ³ Moscow.	1963	100	1	Restored for further use.
Atlant-II (also known as "Tetis").	do	1972	100	2	Operational; improved variant of Atlant-I.
Sever-II	PINRO, Murmansk.	1969	2000	3-4	Operational; conventional, self-propelled submersible.
Tinro-II	TINRO, ⁴ Vladivostok.	1973	300-400	2	Operational; self-propelled submersible.
OSA-3-600 (2 models).	VNIRO, Moscow.	1975	600	3	Operational; self-propelled diving saucer.
Pisces (possibly 3 models).	IOAN, ⁵ Moscow.	1975	600	3	One vehicle purchased from Canada in 1975; possibly two more on order; self-propelled submersible.
Argus	IOAN	1975	600	3	Undergoing testing.
Severyanka	VNIRO, Moscow.	1958	200	60 (6 scientists)	Decommissioned around 1967; converted diesel submarine.
Vega (possibly 2)	Soviet Navy (hydrographic surface).	1970	?	?	Status and specifications unknown.
Unnamed	Soviet Navy	1972	200+	8 divers	Operational; converted diesel submarine used for diver lockout missions.

¹ PINRO—Polar Scientific Research Institute of Marine Fisheries and Oceanography.

² VNIRO—All-Union Scientific Research Institute of Marine Fisheries and Oceanography.

³ AtlantNIRO—Atlantic Scientific Research Institute of Marine Fisheries and Oceanography.

⁴ TINRO—Pacific Scientific Research Institute of Marine Fisheries and Oceanography.

⁵ IOAN—Institute of Oceanology, Academy of Sciences, USSR.

TABLE 2.—SOVIET UNMANNED SUBMERSIBLES

(1967–PRESENT)

Vehicle	Year Developed	Depth Capability	Displacement (kg)	Status and Comments
Krab-I	1967	2000(m)	200	Probably inactivated; used for geological surveys.
Krab-II	1971	2000	200+	Operational; improved variant of Krab-I.
Skorpena	1971	1000	500	Operational; used for marine biological and ocean layer studies.
Manta (7–8 variants).	1972	250	?	Operational; test platform for underwater control systems; used for ocean bottom studies.
Gidroplan	1973	250–300	?	Operational; towed, free-falling drone.
Kayman (I+II) ..	1965–1975	600	360 (Kayman II)	Operational; towed vehicles.

Of the Soviet manned vehicles, two are observation chambers. The Sever-I, of which several variants are believed to have been produced, is a tethered chamber which can be developed to depths down to 600 meters (1,800 ft.).¹⁵ These chambers are used for fisheries research and probably also for salvage/underwater rescue operations. A rather unique observation chamber, the Gvidon, was constructed in 1970.^{16 17}

The Atlant-series of submersibles are towed, hydrodynamic vehicles which look somewhat like aircraft. They are used for fisheries research. Atlant-I, constructed in 1960, is still in use. Atlant-II, an improved variant of the Atlant-I, was constructed in 1972. Designed to be towed astern of a research trawler, it carries a crew of two and can glide to depths of about 100 meters.¹⁸

Three autonomous and self-propelled submersibles have been constructed since 1969. The Sever-II, constructed in 1969, carries a crew of three or four. It is described as "the first Soviet deepwater apparatus designed for the national economy." The 40-ton vehicle can operate submerged for up to 10 hours at a speed of 2.5 knots and is battery powered. It has one propeller for horizontal motion and two others for vertical movement. Its missions include locating and investigating concentrations of fish acoustically, the selection of areas suitable for trawling, and the study of bottom relief. Sever-II has the greatest depth capability of any Soviet manned submersible and can operate at depths down to 2,000 meters.^{19–22}

¹⁵ Boylan, L. Underwater Activities in the Soviet Union. Op. cit.

¹⁶ Danilov, I. V. et al. The manned underwater device Gvidon. Sudostroyeniye (U.S.S.R.), March 23, 1973, p. 4.

¹⁷ Lifshits, L. Underwater research vessel. Sovetskaya Belorussiya (U.S.S.R.), March 23, 1973, p. 4.

¹⁸ Boylan, L. Underwater Activities in the Soviet Union. Op. cit.

¹⁹ Unsigned. Soviet bathyplane. Marine Pollution Bulletin. No. 3, 1973, 39–40.

²⁰ Unsigned. Ocean Science News. Nov. 8, 1974, 3–4.

²¹ Unsigned. Ocean Science News. Apr. 5, 1975, p. 3.

²² Boylan, L. Underwater Activities in the Soviet Union. Op. cit.

Tinro-II, constructed in 1973, is another fisheries research submersible with a depth capability extending down to about 400 meters. The two-man submersible has undergone considerable testing and development during 1974 and 1975 and is now presumably operational. It is presently the only major submersible operating in the Soviet Pacific maritime area.²³⁻²⁶

The most recently constructed Soviet manned submersible is the OSA-3-600. This saucer-shaped vehicle carries a pilot, engineer, and observer. It is equipped with a periscope, two view ports, and three television cameras. Its mission duration is 8 hours with a total life-support potential of 72 hours down to depths of 600 meters. Manipulators on the vehicle can retrieve small, fragile objects or heavier samples weighing up to 20 kilograms. OSA is designed to operate like an underwater helicopter. Precise maneuvering capabilities are attributed to Voith-Schneider propulsion units, an automatic control system, and an attitude control system. The propulsion units reportedly prevent snagging of the propellers on lines or other underwater hazards. Many emergency supply and backup systems have been incorporated into the vehicle. The missions for OSA include fisheries, reconnaissance, oil industry support, and geological sampling. A second variant of OSA is also being developed.²⁷⁻²⁹

For several years, the Soviet Union has attempted unsuccessfully to purchase manned submersibles with associated sophisticated sensor and control equipment from the United States, Canada, and other Western countries. In 1975, the Institute of Oceanography of the U.S.S.R. Academy of Sciences finally negotiated the purchase of a Canadian submersible, Pisces (probably Pisces-5). Two additional Pisces vehicles are believed to be on order. These vehicles will substantially enhance the undersea research capabilities of the Institute, inasmuch as it has never owned manned vehicles.³⁰

In addition to submersibles, the Soviet Union has also taken advantage of obsolete diesel military submarines for fisheries and oceanographic research. The first of these was *Severyanka* which was transferred to the All-Union Scientific Research Institute of Marine Fisheries and Oceanography (VNIRO) in 1957 and became operational in 1958. *Severyanka* made 10 cruises before being decommissioned in 1967. The submarine was made for the development of fisheries-related equipment and fisheries surveys.³¹

In mid-1970, it was reported that the Vega, another converted military submarine had been used for hydrographic research in the Pacific Ocean. The submarine made a 249-day cruise which covered more than 31,000 nautical miles. During the cruise, continuous

²³ Fadeyev, Ye. Track in the depths of the sea. Pravda (U.S.S.R.), Feb. 27, 1974, p. 6.

²⁴ Unsigned. Ocean Science News. Nov. 8, 1974, 3-4.

²⁵ Unsigned. Ocean Science News. Jan. 17, 1975, p. 4.

²⁶ Neretin, Vi et al. Underwater vehicles. Sudostroyeniye (U.S.S.R.), No. 7, 1975, 32-33. (JPRS 360, Nov. 7, 1975.)

²⁷ Panyukhno, Ye. et al. OSA—an underwater scout. Vodnyy Transport (U.S.S.R.), Aug. 9, 1975, p. 4 (IN: Sov. R. & D., Informatics Inc., vol. 1, No. 8, 1975, p. 2).

²⁸ Panyukhno, Ye. OSA departs for the deep. Vodnyy Transport (U.S.S.R.), Nov. 7, 1975, p. 4 (IN: Sov. R. & D., Informatics Inc., vol. 1, No. 10, 1975, p. 5).

²⁹ Unsigned. OSA prepares for underwater flight. (Pravda (U.S.S.R.), Apr. 5, 1975, p. 3.

³⁰ Fadeyev, Ye. Rivals of neptune. Pravda (U.S.S.R.), Oct. 10, 1975, p. 6.

³¹ Boylan, L. Underwater Activities in the Soviet Union. Op. cit.

bathymetric profiling was conducted. Little information on the Vega or her present operational status, equipment, or mission is available.³²

Also in 1970, it was reported that yet another Soviet diesel naval submarine (unnamed) was being converted into a diver lockout vessel.³³ In 1972, it was reported that this submarine could accommodate four divers in a special three-compartment pressurized section of the vessel. Another four divers could be accommodated elsewhere on the vessel as a backup crew. The divers in the pressurized section presumably could be deployed while the submarine was submerged down to depths of 100 meters or more using a helium-oxygen breathing mixture.³⁴ Curiously, since 1972 there have been no further reports of this submarine. Presumably it is attached to the Soviet Navy. It is apparently the only submersible vessel in the Soviet Union which can be used for diving activities.

In addition to manned vehicles, the Soviet Union has also developed a few, small unmanned submersibles since 1967. These include the Krab-series of platforms constructed by the Institute of Oceanology and capable of being deployed by cable to depths down to 2,000 meters. Other vehicles include the Manta series, used as test platforms for underwater control systems, Skorpena, used for ocean layer studies. All of these fairly rudimentary platforms are cable controlled or tethered. Some are equipped with television, cameras, and manipulator systems for gathering small samples. The control system of the Manta series is somewhat unique in that the operator sits on a gimbaled seat in front of a television feedback monitor. The operator is therefore oriented in the same plane as the submersible to provide for more accurate control of the platform.³⁵⁻³⁷ This same remote-control concept has been used in the Soviet series of lunar probes which have involved the use of small robot vehicles (Lunokhod).

More recently, it was announced that the Russians are building a new unmanned submersible, Kayman-II. This is a towed vehicle which is equipped with television to study the ocean floor, observe the behavior of fish, and to inspect fishing equipment.³⁸

VEHICLES PLANNED OR UNDER DEVELOPMENT

In addition to the undersea research vehicles discussed above, a substantial number of vehicles have been designed but never constructed. A summary of the major characteristics and presumed status of these vehicles, as described by Boylan,³⁹ is provided below in table 3.

³² Ibid.

³³ Yermolayev, V. *Kransnaya Zvezda* (U.S.S.R.). Aug. 19, 1970, p. 4.

³⁴ Chertkov, V. *Pravda* (U.S.S.R.). March 19, 1972, p. 6.

³⁵ Boylan, L. *Underwater Activities in the Soviet Union*. Op. cit.

³⁶ Snegov, S. *Kazakhstanskaya Pravda* (U.S.S.R.). Sept. 26, 1972, p. 4.

³⁷ Unsigned. Soviets develop robot sea bottom vehicle. *Undersea Technology*, August 1972, 31:11.

³⁸ Unsigned. *Ocean Science News*. Nov. 14, 1975, p. 1.

³⁹ Boylan, L. *Underwater Activities in the Soviet Union*. Op. cit.

Table 3. Soviet Undersea Research Vehicles Designed or Under Development

Vehicle	Sponsor	Year Designed	Depth Capability(m)	Crew	Status and Comments
<u>Manned Deep Submergence Vehicles</u>					
B-5	Giprorybflot	1959	5,000	2-3(?)	Somewhat similar in appearance to Trieste; mention of this vehicle in the Soviet literature has ceased in recent years.
B-11	"	"	11,000	"	"
DSB-11	"	1965	"	3	Variation of the above; reported to be under development in 1970.
Sever-3	PINRO	1970	6,000	3	Reportedly planned for construction between 1970 and 1980; status unknown
<u>Limited Depth Vehicles</u>					
Bentos-300	PINRO	1966	300	10	Several designs made; semi-autonomous, self-propelled undersea habitat; to be constructed between 1970 and 1980; present status unknown.
AMS-200 (Nekton)	Giprorybflot	1968	450	2	Conventional, self-propelled submersible; would be used in support of Bento-300; status unknown
Nekton (PA-600)	VNIRO (?)	1973	600(?)	?	Fisheries reconnaissance vehicle; status unknown
Kal*mar (Okeaniya)	Ukrainian Acad. of Sciences	1970	?	(1)?	Small, maneuverable vehicle to be used by divers; presumably operational; exact status unknown
AMP-40 (Makrel)	Giprorybflot	1967	100	1	Diver transport vehicle; status unknown
TINRO-1	TINRO	1965	300	6-7	Fully autonomous, diesel-powered minisub; diver lockout capability; status unknown

Curiously, there has never been any mention in the Soviet literature about a Soviet naval submersible program. Indeed, with the exception of the Soviet Navy diver lockout submarine discussed earlier, there is no published evidence of a single operational naval submersible. The only reference to a military submersible is contained in an article about the OSA-6-300 discussed earlier.⁴⁰ In that article, it is mentioned that an engineer, V. P. Shmatok, chief designer of the OSA and head of the Moscow branch of the Giprotybflot Institute, conceived of the idea of a stabilized vehicle such as OSA about 15 years ago during his service in the Soviet submarine fleet. At that time (presumably around 1965), the Soviet Navy's first underwater vehicle was designed and constructed under Shmatok's supervision. The present status of that vehicle is not known. Either the Soviet Navy does not support a significant submersible program, or if it does, that program is a closely guarded secret.

In general, Soviet plans for submersible development have been far more grandiose than the record of actual submersible development to date. Although manned vehicles with depth capabilities down to 11,000 meters have been planned since the mid-1960's, the greatest depth capability of any Soviet manned submersible to date is 2,000 meters (Sever-II). At the same time, the maximum depth capability of an American submersible (Trieste) is about 6,000 meters, and that work was achieved in 1960.

Notwithstanding the above, ambitious plans for sophisticated manned and unmanned underwater vehicles continue to appear in the Soviet literature. Individuals prominent in Soviet undersea research circles continue to predict the development of elaborate nuclear powered, manned vehicles and large, self-propelled habitats. At the same time, the Institute of Oceanology is continuing the development of more sophisticated remote-control undersea "robots" to carry out a variety of undersea research tasks. These platforms will apparently evolve from the already discussed Krab and Manta series of platforms already in service.^{41, 42} Soviet scientists are also working on designs of future underwater bulldozers, graders, excavators, and ore carriers for offshore mining operations and undersea harvesters for seaweed farms.⁴³

There apparently has been considerable discussion in higher Soviet planning circles as to the status of and priority thus far accorded to undersea technology. One prominent Russian engineer and planner, A. Dmitriev, chief engineer for technical means of underwater research, State Planning Institute of the Fishing Fleet (Giprotybflot), argues that the Soviet fisheries industry has pioneered the development of undersea vehicles virtually single-handedly, while other Soviet undersea concerns have been using "handicraft" methods to produce expensive and relatively useless vehicles. He adds that these vehicles are of mediocre design and are unsafe to use. Examples of poor design cited are the submersibles Gvidon (table 1.), Krab (table 2.),

⁴⁰ Panyukhno, Ye. OSA departs for the deep. Op. cit.

⁴¹ Snegov, S. Underwater relative of lunokhod. Sovetskaya Vilnyus (U.S.S.R.). Sept. 4, 1975, p. 4 (JPRS 361 of Dec. 3, 1975).

⁴² Yastrebov, V.S. Underwater robots in oceanic research. IN: Reports on the Theory, Principles of Construction, and Use of Robots and Manipulators. Leningrad, 1974, pp. 28-32.

⁴³ Bakke, D.R. Russia determined to lead in oceans. Offshore. Vol. 33, No. 4, 1973, 68-70.

and Kal'mar (table 3.). In contrast, examples of well designed vehicles produced by fisheries concerns include Sever-II, Tinro-II, and the towed vehicle Atlant-II (table 1.).⁴⁴ Certainly the published record would seem to bear Dmitriev out. For virtually all major Soviet submersibles have been produced for the fisheries industry. In contrast, only one of the more than 30 American submersibles has been used for fisheries purposes.

Dmitriev feels that the Soviet Union should embark on a program to "master the sea." Toward that goal, he proposes that the construction of undersea vehicles be centralized in one agency. He also proposes the creation of a "unified state interdepartmental organ able to decide questions on the development and use of underwater technology for the needs of the national economy". The rationale behind these proposals is that ocean engineering and resource development cannot, in his view, be solved in a piecemeal manner. At present, the various undersea missions are scattered among many Soviet organizations and enterprises which, according to Dmitriev, consider mastering the ocean a secondary goal of minor importance.⁴⁵ Interestingly, the same observation has been repeatedly made of the administrative condition of American undersea technology programs.

UNDERWATER HABITATS

Since the mid-1960's, the Soviet Union has deployed some 10 habitats.⁴⁶⁻⁴⁷ All Soviet habitats have been nonnaval and the depth to which all of them have been deployed in the Black Sea has not exceeded 30 m. The three major habitat programs have been "Chernomor", in which two habitats and improved variants thereof were deployed between 1968 and 1972.⁴⁸⁻⁵¹ The "Sadko" program between 1966 and 1969 involved the construction of three spherical habitats.⁵² The "Ikhtiandr" program involved the development of several small structures which were tested between 1966 and 1969.⁵³ Finally, the Soviet Union has continued to develop a series of small, inflatable habitats of the "Sprut" series.⁵⁴ The status of the Soviet undersea habitat program is summarized in table 4.

⁴⁴ Unsigned. Ocean Science News. Jan. 24, 1975. p. 1.

⁴⁵ Ibid.

⁴⁶⁻⁴⁷ Ibid.

⁴⁸ Borovikov, P.A., Brovko, A.M. Podrazhanskiy, A.M. Stefanov, G.A., Yastrebov, V.S. Chernomor-2 sealab. Sudostroyeniye (Shipbuilding, U.S.S.R.), No. 7, 1971, 19-20.

⁴⁹ Borovikov, P.A., Brovko, V.P., Podrazhanskiy, A.M., Stepanov, G.A. and Yastrebov, V.S. The Chernomor-2 underwater laboratory. P.P. Shirshov Institute of Oceanology, U.S.S.R. Academy of Sciences, 1973, No. 2737-71.

⁵⁰ Klisurov, L. The Chernomor-2 and the experiment off Cape Maslen Nos. Korabostroene, Koraboplavane (Shipbuilding and Cruising, Bulgaria), No. 9, 1973, 26-30.

⁵¹ Podrazhanskiy, A. et al. The March of Chernomor. Moscow, "Gidrometeoizdat," 1973, 187 p.

⁵² Deruygin, K.K. and Dzhus, V. Ye. Some results of scientific research work of the underwater research laboratory. Oceanology (U.S.S.R.), Vol. 10, No. 5, 1970, 906-910.

⁵³ Kiklevich, Yu.N. Ikhtiandr-an amphibious man. Leningrad, Hydrometeorological Publishers, 1971, 219 p.

⁵⁴ Danilov, I. Underwater research in the U.S.S.R. Op. cit. p. 274-280.

Table 4. SOVIET UNDERWATER HABITATS

Habitat	Year Deployed	Dimensions (m)	Crew	Depth Deployed	Duration of Experiment	Experimental Mission	Present Status
Sadko-I	1966	diameter=3	2	10(m)	6 hr.	physiology & hydrography	Inactive
Sadko-II	1967	diameter=3 (2 spheres)	2	25	7 days	physiology & hydrography	Inactive
Sadko-III	1969	diameter=3 (2 spheres)	3	25	4 days	hydrology & bioacoustics	Inactive
Ikhtiandr	1966-1970	variable: 2x1; 2x2; 6x2	1-5	11-12	2-14 days	medicine, physiology, nutrition, biology	Program now involved in the testing of diving suits for prolonged under-water stays
Chernomor-I	1968	length=8 diameter=3 height=6.1	5-6	13	30 days	geology; hydro-optics; marine biology; medicine; physiology	Inactive
"	1969	"	5	12	8 days	oceanology; medicine; physiology	"
Chernomor-II	1970	"	5	24	17 days	ocean engineering	"
Chernomor-IIa	1971-1972	length=8 diameter=3 height=6.3	5	15	52 days	geology; hydro-optics; medicine;	Inactive; Donated to Bulgaria
Sprut (several) variants	1967-1974	diameter=2.4 height=2.0	1-2	5-10	1-2 days	hydrochemistry; used as a diver rest station	Portable, inflatable habitat variants of which are still in use.
Chernomor-100	1976-1977	---	---	300 (est.)	30+ days	---	Under development.

At the present, the Soviet underwater habitat program is largely inactive. Apparently, the only future habitat program is to be Chernomor-100. The new habitat will be mobile and autonomous. It will probe progressively deeper until a continental shelf-depth of about 300 meters is attained.⁵⁵ The status of this program is not known at the present time. It is believed that the Soviets will progress slowly toward attaining an operational diving and habitat depth of 300 meters.

Bentos-300, another autonomous habitat has been reportedly under development since the late 1960's (Table 3.).⁵⁶⁻⁵⁸ This habitat would be able to maintain 10 divers at depths down to 300 meters for up to 30 days. The status of this habitat is unknown. It was reported in 1972 that prototype development was underway, but there has been no confirmation of this report.

Unlike certain United States (Sealab series) and French (Pre-Continent series) habitats of the 1960's which were deployed to saturation diving depths of more than 100 meters for durations of up to 30 days, Soviet habitat programs have not been deployed to depths exceeding 30 meters. Similarly, while the greatest duration of a United States habitat program was 59 days (Tektite-I in 1969), the greatest duration of a Soviet habitat program was 52 days (Chernomor-2m in 1971). Both the United States and French habitat programs have and continue to be qualitatively superior to the Soviet program in terms of habitat construction, life-support technology, depth capability, and program duration and diversity.⁵⁹ Western habitat programs have been characterized by geographical flexibility of deployment whereas all Soviet habitat programs to date have been conducted in a relatively small region of the Black Sea. Soviet habitat programs have continued to lag their Western counterpart programs both programmatically and technologically.

DIVING RESEARCH AND DEVELOPMENT

The Soviet Union is only slowly developing the capability to send men to depths exceeding 100 meters. In contrast, Western countries such as the United States, Great Britain, France, and Italy, have rapidly developed both military and civilian deep saturation diving capabilities during the past decade. Such a capability permits the diver, equipped with an insulated or heated suit and⁶⁰ underwater breathing equipment supplied with specially mixed breathing gases (helium-oxygen or helium-nitrogen-oxygen) to work at depths exceeding 100 meters for relatively short periods of time. Western divers have now attained the capability to dive to depths exceeding 300 meters. One benefit of such a capability is that divers can be sent to great depths to carry out complicated tasks which are beyond the capabilities of manned submersibles or remote control vehicles

⁵⁵ Stefanov, G. Underwater research in the Black Sea. *Underwater Journal and Information Bulletin*, Vol. 4, No. 6, 1972, 249-251.

⁵⁶ Snegov, S. In the steps of Chernomor. *Sovetskaya Latvilya*, June 1, 1974, p. 2.

⁵⁷ Danilov, I. Underwater research in the U.S.S.R. *Op. cit.* p. 274-280.

⁵⁸ Boylan, L. Underwater Activities in the Soviet Union. *Op. cit.* p. 55-60.

⁵⁹ Manned Undersea Activities of the Federal Agencies and Utilization of Manned Undersea Research Submersibles and Habitats, December 1972, *Op. cit.*, p. 4-9.

⁶⁰ Dodge, C.H. International diving programs and technology. NOAA/NAS/NAE Joint Workshops on Manned Undersea Activities. Oct. 17-20, 1972, 13 p.

equipped with manipulators or special tools. Some disadvantages of such an approach include risks associated with the danger of rapid decompression from great depths where gases become highly-saturated in the blood; the length of time required to compress and decompress divers prior to and after a deep dive; and the associated expense and requirement for professional and equipment logistics.

While the United States has a relatively good supply of medically suitable helium available for deep saturation diving operations, diving-grade helium in the Soviet Union is believed to be in relatively short supply. This factor and the relatively shallow depth of Soviet continental shelf areas might explain why the Soviet Union has not been competitive with Western deep diving research and development until very recently. At present, only Soviet naval divers are believed capable of conducting deep saturation diving operations in excess of 200 meters. At the same time, Soviet nonmilitary diving operations, such as those associated with the previously discussed Soviet habitat program, have generally been confined to depths of less than 100 meters.⁶¹⁻⁶³

As discussed earlier, at least one underwater habitat is being developed by the Institute of Oceanology which will be able to submerge to depths of 100 meters or more (Chernomor-100). Associated with this development is the imperative to develop a deeper diving capability. To this end, a new diving simulation facility, known as "Krolik" has been completed by the southern branch of the Institute of Oceanology near the town of Gelendzhik on the Black Sea. This hyperbaric facility is described in the Soviet press as being one of the largest in Europe and permits the simulation of mixed-gas (helium-oxygen) diving operations down to the 300-350 meter level. This is the first such facility constructed in the Soviet Union. Its development provides further evidence that there is renewed emphasis on manned undersea programs in the Soviet Union.⁶⁴

While there would now appear to be a renewed effort to develop a deeper diving capability in the Soviet Union, research continues on the refinement of shallow diving technology (depths of 100 meters or less) using gas mixtures containing nitrogen, oxygen, and small amounts of helium. This relatively economical concept of shallow diving is also receiving renewed attention in the United States, Sweden, and Japan. In the context of shallow diving, the Soviet Union is also developing specialized diving suits and associated life support equipment which will support prolonged (one day or longer) underwater stays by divers at depths of 100 meters or less.⁶⁵ The exact purpose of this rather curious approach to diving operations is not known.

⁶¹ Shikanov, Ye. P. Handbook for Divers. Moscow, "Voenizdat," 1973, 318 p. (JPRS 60691).

⁶² Gulyar, S. A. et al. Basic principles of human adaption to the conditions of shallow-depth underwater laboratories. *Uspekhi Fiziologicheskikh Nauk* (U.S.S.R.), No. 3, 1974, 92-101 (FRD Abstract No. 1971).

⁶³ Kolchinskaya, A.Z. et al. (EDs.) Undersea Medical and Physiological Investigations. Kiev, "Naukova Dumka," 1975, 164 p. (FRD Abstract No. 2782).

⁶⁴ Unsigned. The depths are conquered on shore. *Sovetskaya Latvya* (U.S.S.R.), Sept. 12, 1975, p. 2.

⁶⁵ Barats, Yu. M. et al. Diving suit for man's prolonged stay underwater. *Sudostroyeniya* (USSR), No. 9, 1971, p. 26.

In summary, there is little evidence that the Soviet Union is attempting to compete with the West in deep saturation diving. Rather, she appears to be developing diving capabilities responsive to her unique goals. The limited Soviet goal (nonmilitary) would appear to be to gradually develop a diving capability which will permit work down to but not substantially exceeding the 300 meter level. This level is compatible with most of the Soviet inland water and continental shelf areas which seldom exceed 200 meters in depth. At the same time, the Soviet Union will undoubtedly continue to attempt the purchase of Western diving technology in order to achieve these modest goals as quickly as possible.

SUMMARY AND FORECAST

Soviet submersible development, unimpressive by Western standards thus far, will probably receive increased emphasis during the remainder of the 1970's and 1980's. Two factors appear to be responsible for this trend. First, there has been rather outspoken internal criticism of the organization and administration of Soviet submersible development by high-ranking officials and designers who feel that the program has been inhibited by ill-conceived goals as well as diffuse and ineffective administration. It is possible that this criticism will lead to the more centralized and efficient planning of future submersible designs and programs. Second, undersea exploration and the ultimate exploitation of various undersea resources is receiving increased emphasis in the Soviet Union which will obviate the development of sophisticated undersea hardware. Already the Soviet Union is purchasing foreign submersibles and those now under development will represent a considerable technological improvement over their predecessors. Technology transfer from West to East will probably continue to serve to expedite the attainment of future Soviet undersea research and development goals.

Soviet undersea habitat and diving performance, always modest by Western standards, will probably remain so in the foreseeable future. The Soviet Union is developing at least one habitat and the associated diving capability to allow man to work in the open sea at depths of 100 meters or slightly more. During the 1970's and 1980's, this capability will probably be extended gradually down to 300 meters or slightly more. The capability to conduct habitat and diving operations below the 200 meter level will effectively permit exploration of most of the Soviet continental shelf and inland sea areas.

Finally, unmanned means of undersea exploration and resource exploitation are receiving increased emphasis in the Soviet Union. Already, Soviet unmanned undersea vehicles have had incorporated into them the same types of remote-control technologies and capabilities of unmanned lunar rovers of the "Lunokhod" series. Therefore, during the remainder of the 1970's and the 1980's, it is expected that more sophisticated unmanned vehicles or "robots" will be developed to carry out specific tasks in undersea environments where manned activities are either complicated or impossible.

SOVIET OCEAN SCIENCE ACTIVITIES*

(By Herman T. Franssen¹)

SUMMARY

The conduct of oceanographic research on a large scale is relatively young in both the Soviet Union and the United States. In the United States, oceanography underwent very rapid growth during the Second World War when the Government and the scientific community suddenly realized that nature is often a limiting factor in the effectiveness of new devices designed for use in the ocean. Special units were set up for the conduct of ocean science within the Department of Defense, and a considerable number of university scientists were either assigned to defense research in DOD laboratories or received Government assistance to work on war-related research at their own universities. An important result of the wartime activity was that for the first time a considerable number of university scientists became, to some degree, familiar with problems of oceanography and a much larger number of young graduate students in physics, chemistry, geology, geophysics, meteorology, and engineering gained field experience. The United States went into the war with only about 50 people who could properly be called oceanographers. By the end of the war, about 300 professionals and a considerably greater number of technicians had acquired experience in the subject.

The Soviet Union began its major oceanographic expansion in the 1950's, around the same time they pushed ahead with the development of a major worldwide fishing capability and a large merchant marine. All these developments were part of the overall post-Stalin plan for a global marine policy.

In 1957-58 two events occurred which signalled a quantum jump in Soviet oceanological research capabilities. The first was the mounting of the largest oceanological research program to be associated with the International Geophysical Year. The second was the launching of the Michael Lomonosov, the first of a sizable number of large, first rate, oceanographic research ships.

Evidence indicates that the United States was the world's leader in oceanography (measured in terms of inputs: ships and scientific personnel) until the early 1960's when the Russian program of expan-

*Sources statement: The facts and figures in this section were drawn largely from the most knowledgeable agencies in the U.S. Government in the area of ocean science, and in particular the Department of Defense. With respect to the latter, absence of specific attributions was a condition of securing information.

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sion was well underway. A six-man delegation of American ocean scientists visiting the U.S.S.R. in 1964 reported that in 1961, the U.S.S.R. was operating oceanographic survey ships having a total gross tonnage of 50,000 tons compared with 60,000 tons in the United States. The number of scientists (excluding technicians) was estimated at 700, expanding at a rate of 10 to 15 percent per year. The number of Soviet oceanographers was estimated at between 1,000 and 1,500 in 1964. The United States had more than 1,500 scientists at that time (2,000 were listed in 1968 vs. 1,600 for the U.S.S.R. in that year).

In 1974, the number of ocean scientists and supporting technicians in the United States totalled between 2,000 and 3,000, while the Soviet Union was estimated to have between 7,000 and 8,000 ocean scientists and technologists. The actual number of scientists may not differ very much between the two countries. The great discrepancy is in the numbers of technicians. The Soviets have long been thought to be handicapped by a shortage of scientific personnel, and they have apparently opted to supplement their professional ocean scientists with oceanographic technicians. The Soviet oceanographer at the Candidate (Ph.D.) level can expect a group of five to ten junior scientists and technicians to assist him in his work. In contrast, the American ocean scientist works with little support, and tends to be overwhelmed in a morass of data.

Comparing the strength of the two countries in terms of their respective oceanographic fleet with worldwide oceanographic capabilities, U.S. superiority was known to be overwhelming in the 1950's and early 1960's. By 1971, the United States had 39 research vessels of over 1,000 GRT; the U.S.S.R. had 70 such ships. Counting all oceanographic vessels, including small coastal ships, the United States had 120 ships and the Soviets 200 in 1974. Of the United States research ships in the over 1,000 GRT category, six are over 20 years old; most of the Soviet ships were constructed during the 1960's. The Defense Department data on the comparative size of the oceanographic research fleets coincide with figures quoted by Janis and Daniel.² The latter maintain that in 1970 the Soviet fleet was made up of approximately 200 vessels with a displacement of about 320,000 tons, compared with only 180,000 tons for the U.S. oceanographic research fleet. It should be noted that the total number of available research vessels is only one way to measure oceanic research activities. Actual time spent at sea doing oceanographic research and the methods of data collection are of great importance. U.S. ships are known to spend more active time at sea than Soviet vessels and their highly automated methods of data collection greatly enhance their capabilities.

Intelligence sources indicate that the Soviet Union has continued to improve its oceanographic resources by additional new construction of ships, qualitative improvements of their research fleet, and continued input of trained oceanographic technicians to supplement the professional ocean scientists. In contrast, critics maintain that the U.S. oceanographic program has been poorly funded in recent years. The Navy's oceanography program peaked in 1967 with a budget of \$268 million (1967 dollars). In 1974, only \$184 million was allocated for oceanography and \$178 million was actually made available in FY

²Mark W. Janis and Donald C. F. Daniel, *the U.S.S.R.: Ocean Use and Ocean Law*, L.S.I. Occasional Paper No. 21 (University of Rhode Island, Kingston, May, 1974), p. 6.

1975. There will be an increase to \$188 million in FY 1976 and an estimated \$214 million in FY 1977. In view of the high rate of inflation in recent years, the actual decline is much higher. Some have argued that National Science Foundation funding has made up for the declining Naval budget for oceanography, but even a casual look at the NSF budget for oceanography shows that actual NSF funding in real dollars declined somewhat in recent years.

Intelligence reports indicate that the Soviet Union continues to expand its oceanographic research fleet while the U.S. Navy received funding for only two small research ships between FY 1968 and 1975. (The Soviet Union had constructed 39 oceanographic ships between 1960-67, 69 between 1968-74, and added four more in 1975.)

Working together or independently, the American Government, industry and academic institutions have come forward with some real technological achievements in oceanographic instrumentation during the past decade and a half. The Soviet Union was known for years to be behind the United States in instrumentation technology, a vital part of oceanography that enables scientists to collect and interpret data. A group of U.S. ocean scientists visiting the U.S.S.R. in 1972 noticed considerable progress in the Soviet Union and note in their report to the government, "The work of the Institute of Oceanology is well known to most of the oceanographic research scientists in the United States. However, those on the delegation who had visited the institution in previous years, were greatly impressed by the strides made in the instrumentation and data processing capabilities since their last respective visit. Soviet scientists have long been known for their excellence in theory. These new tools provide opportunities for great strides in Soviet oceanography and major contributions to the world in marine sciences." Visits by American ocean scientists to Soviet laboratories and research ships confirm the quoted report as well as Soviet articles on advanced instrumentation used in oceanographic investigations.

Unpublished information confirms personal observations by U.S. scientists that in some aspects of oceanographic research the Soviets are behind. For example, Russian oceanographers do not have at their disposal sophisticated satellite navigation systems, advanced ship borne computers and instrumentation such as vector averaging current meters. Hence, the Soviet Union is eager to cooperate in international programs and has made numerous attempts to purchase western technology. New systems are on the drawing board in the United States, but R. & D. programs have slowed down considerably due to budget restriction. The budget for basic science conducted by the Navy itself declined from \$30 million in 1968 (1968 dollars) to \$28 million for 1975 (current dollars). As a result of these budget cuts the Navy had to cut personnel in the basic research laboratory from approximately 540 in 1968 to 260 today.

Summarizing Soviet current capabilities in oceanic research, it is fair to say that they are well ahead in the number of research ships, they have capable personnel to man those ships and their onshore facilities, and after a period of copying western instrumentation, the basic "oceanographic instrument suit" on their ships is approaching parity with the United States. If naval and civilian funding for U.S.

oceanography does not improve, the Soviets are likely to achieve parity in instrumentation soon.

The one area in which the Soviets clearly surpass the U.S. effort is polar research. In support of their Northern Sea route, the Soviets maintained four drift stations with scientific parties of 15-25 personnel from 1968-72 (now only one left). This program is also supported by a number of polar research ships including one of new construction. In contrast the U.S. Navy occasionally supports one Arctic Ocean drift station and has fewer ships committed to polar research. The importance of Arctic research becomes obvious if one realizes that the Arctic is not only a highly strategic military area, but it is the one area in the world where we literally stand fact-to-face with the Soviet Union. In the Antarctic, Soviet multiship oceanographic operations are conducted during each austral summer.

NAVAL VS. NONNAVAL ACTIVITIES

In contrast to the United States where about 50 percent of all oceanographic research is conducted by academic and private research institutions, all Soviet research is controlled and conducted by government institutions.

In oceanography, the Soviet Naval Hydrographic Service shares responsibilities with over fifty service-oriented institutions (academic and government labs). The major nonnaval organizations involved in oceanography (and operating research vessels) include: Hydrometeorological Service, Institute of Oceanology, Marine Hydrophysics Institute, Acoustics Institute, All-Union Scientific Research Institute of Marine Geology and Geophysics, All-Union Scientific Research Institute of Marine Fishery and Oceanography. The most important of these are the Hydrometeorological Service and the Institute of Oceanology. The Hydrometeorological Service is roughly the Soviet equivalent to the National Oceanic and Atmospheric Administration. Founded in 1936, it has broad responsibilities for supervising collection of hydrologic and hydrometeorologic data. Its subordinate Arctic and Antarctic Scientific Research Institute is the major organization in polar research. The Service operates some thirty ocean-going research vessels and runs World Data Center B (NOAA runs World Data Center A).

The Institute of Oceanology carries out research in the broad spectrum of oceanography with emphasis on ocean dynamics, geology, geophysics and prototype oceanographic instrumentation. The headquarters of the institute is located in Moscow with branches at Leningrad, Kaliningrad, and Gelendzhik. It is at the Institute of Oceanology's Gelendzhik branch that an extensive manned and unmanned submersible program is based.

The Soviet Naval Hydrographic Service has broad responsibilities for oceanographic and hydrographic surveying and services. Few details are available concerning their operations and activities. Their concern is with military oceanography, and their research findings are not published. The nonnaval research institutions are only the top of the Soviet oceanographic iceberg. While they are controlled by the central government, they do participate in international activities and publish a vast quantity of scientific material that is readily available.

Unlike many U.S. oceanographers who emphasize "pure research", published in well known national and international magazines, Soviet ocean scientists are said to be more pragmatic. Their first concern is immediate practical results. Hence, a great deal of the nonmilitary effort is concentrated on problems related to the utilization of ocean resources both living and nonliving. The work of oceanological agencies usually entails locating the resources, be they fish or mineral, and aiding in the development of techniques and equipment necessary to exploit them. Soviet oceanographers also serve the needs of the merchant marine, through the determination of wind and current conditions throughout the world. The Naval Hydrographic Service disclaims the conduct of any basic research but instead has its basic research requirements done by the civilian institutions. In spite of the fact that the Naval Hydrographic Service downplays its role in Soviet oceanography, it is known to have a major role in oceanic research. The hydrographic office of the Naval Hydrographic Service claims to have produced a total of 2,200 charts, which is almost triple the number of issues produced by the National Ocean Survey of NOAA and nearly a third of the quantity issued by the U.S. Defense Mapping Agency Hydrographic Center. Distribution of Soviet nautical charts is extremely limited, and they are not generally available to the public. Most Soviet vessels may be considered as data source; collecting primarily routine data. Some observers consider that the Soviet Union, through its naval survey program and the purchase of foreign chart editions, has compiled a very nearly complete holding of nautical charts of the world.

REASONS FOR SOVIET EMPHASIS ON OCEANOGRAPHY

Strong forces from both the military and civilian sectors of Soviet society are pushing for increased funding of the oceanographic effort. Oceanographic data are considered essential for the operation of a modern navy. They supply input to both bathymetric and navigational charts and provide environmental predictions necessary in the development of undersea warfare techniques.

Historically, the Soviet Union has suffered a shortage of animal protein. A high percentage of the total caloric intake in the average Russian diet is estimated to consist of some form of cereal product. Fisheries-related oceanographic research probably will lead to the most rapid means for overcoming this deficiency.

Extensive oceanographic activity is required in the northern coastal waters of the U.S.S.R. in support of Northern Sea Route navigation. This route is a vital communications link between eastern and western portions of the Soviet Union, and with increased development of the Soviet Far East, its importance increases.

Although much of the Soviet oceanographic effort represents basic and descriptive survey interests, the proportion of Soviet marine research work directed toward applied oceanography is larger than that of the United States effort. The Soviets place major emphasis on physical oceanography, although there are active programs in biological, geological, and chemical oceanography and in marine meteorology.

A recent publication of the Academy of Sciences characterized the trend in Soviet oceanographic work as follows: Increased numbers of expeditionary cruises, decreased integrated (i.e., broad-spectrum) investigations and a concurrent increase in specialized cruises, intensified hydrodynamic and geophysical work, and increased participation in international research projects. The Soviets look for a rapid and efficient conversion of this basic research into economic development while gaining world respect for their scientific achievements.

SOVIET POSITION ON FREEDOM OF SCIENTIFIC RESEARCH AT SEA

The freedom to conduct scientific research on the high seas is a corollary of the ancient doctrine of freedom of the high seas which has been under serious attack ever since the inclusion of article 5, paragraph 8 in the 1958 Continental Shelf Convention. This article reads:

"The consent of the coastal state shall be obtained in respect of any research concerning the continental shelf and undertaken there. Nevertheless, the coastal state shall not normally withhold its consent if the request is submitted by a qualified institution with a view to purely scientific research into the physical or biological characteristics of the continental shelf, subject to the proviso that the coastal state shall have the right, if it so desires, to participate or to be represented in the research, and that in any event the results will be published."

The Soviet Union, as an oceanographic research leader and defender of the concept of freedom of the high seas, defends the right to freely conduct research on the high seas, but has frequently limited access to its coastal waters to U.S. oceanographic vessels. In an article on restrictions on oceanic research, Judith Kildow of the Scripps Institution of Oceanography writes:

Between 1967 and 1971 the Soviet Union on four occasions gave military security reasons for refusing American scientists' request to do research in their waters or on their shelf. On the fifth and sixth occasion, the United States attempted to arrange an exchange program to perform physical and chemical work in Soviet waters but met with no response. These cases could perhaps also be attributed to military reasons, if further information were uncovered, since the Russians have consistently turned down American requests to perform research in their waters.

However, the Soviets took a different view at the preparatory meetings on the law of the sea, where they have ardently defended oceanic research, saying that in view of the importance of marine scientific research, attempts to deny or limit the freedom of scientific research in the world ocean were completely unjustified. Any such limitation would be a step backward and highly detrimental to the interests of the world community.

Within the context of the proposed economic resource zone in the oceans, developing nations in particular have insisted that all scientific research needs to be controlled by the coastal state in this zone, which may extend out to 200-nautical miles from the coast. The Soviet Union and the United States, the only two nations with major worldwide oceanographic capabilities, are very much opposed to this position because it would adversely affect more than two-

thirds of all oceanic research. The United States has, however, expressed its willingness to compromise on the issue to the extent that it would be willing to provide coastal states with specific details on cruise proposals and with data collected within their economic zone, assist them in interpreting the results, and provide coastal states with some technical assistance. The Soviet Union has not made any such proposal and continues to insist on complete freedom of scientific research outside territorial waters of 12 nautical miles.³

U.S.-U.S.S.R. BILATERAL AGREEMENTS

Due to the efforts of the U.S.-U.S.S.R. Joint Committee on Cooperation in World Ocean Studies there are now a total of fifteen cooperative projects agreed to by both sides for either continued implementation or immediate development. Three of these projects deal in ocean-atmosphere interaction; two with ocean currents and dynamics; six in marine geology; geophysics and geochemistry including deep sea drilling; three in biological productivity; and one in instrumentation. Most of these activities are joint field investigations extending over several years from planning, through field operations to data analysis. Geographic areas of operation will be the Atlantic, Pacific, Indian, and Southern Oceans aboard vessels of both countries.

The new areas of activity agreed upon include a study of the monsoon in the Indian Ocean and the oceanic response to it, a study of the parameters which affect ocean sedimentation, and a study of the origin and evolution of oceanic lithospheric plates. Since both sides have been conducting projects in the Indian Ocean on studies of the monsoon and the oceanic response to it, it was agreed to coordinate plans with a view towards joint activities. This effort also will be part of both countries' participation in the International Global Atmospheric Research Program (GARP).

Both of the new geological and geophysical projects are extensions of the present cooperative programs. Data must be gathered on dynamic processes that control marine sedimentation, erosion and transportation, if paleo-oceanographic conditions are to be correctly interpreted from cores of the ocean floor. As data on the sedimentary layer accumulates there will be an increasing demand to investigate deeper layers of the earth and to understand the dynamics that drive the features observed at the surface. Consequently, a cooperative program is proposed to investigate the oceanic lithosphere.

The Soviets also expressed the desire to develop projects concerning studies of the Southern Oceans and the North Pacific. Plans are now being developed by each country for further work in the Drake Passage and it was agreed to coordinate this work and develop possible cooperative projects. Soviet participation in large-scale air-sea interaction studies in the North Pacific Ocean are being explored. The increased Soviet interest in this area is attributable to the Hydrometeorological Service, which possesses major resources such as ships and is interested in large-scale air-sea interaction.

The bilateral polymode program will take place in the Atlantic Ocean to examine the nature of circulation systems (large-scale eddies) in the ocean. In this program, Soviet ship participation represents a significant contribution.

³Since this study went to press, the Soviet Union has completely changed its attitude towards freedom of scientific research at sea in the economic zone. The Soviets are now in agreement with the group of 77 which has called for consent for all foreign research activities conducted in the economic zone.

Motivated by the long-range resource implications of work in the field of geology and geophysics, the Soviets have pushed strongly for joint efforts to explore many of the basic geophysical and geological processes in the oceans. Their contribution of \$1 million annually to the Deep Sea Drilling Project (DSDP) in exchange for participation in the project represents a commitment to take advantage of both technology and the potential for increased knowledge by their participation aboard the technologically unique Glomar Challenger.

FUTURE

The 1971-75 5 Year Plan emphasized the development of scientific research at sea for the elaboration of problems of the broader and more rational utilization of the resources of the seas and the ocean, and the elaboration of scientific principles of the protection and transformation of nature for the purpose of improving the natural environment surrounding man. The Russians are expected to continue their fleet expansion and training programs, to improve their instrumentation, and to pursue research and development on submersibles.

Soviet Navy requirements will continue to be the major driving force in this oceanography program. Cooperative research efforts (bilateral and multilateral) in the marine sciences with the United States and other countries will receive increasing emphasis.

U.S.-U.S.S.R. AGREEMENT FOR COOPERATION IN OCEANOGRAPHY

(By Donald P. Martineau¹)

BACKGROUND

The oceans of the world have long provided an arena for cooperation by scientists from many nations, irrespective of their ideologies. With the oceans covering nearly three-fourths of the earth's surface and the complexity of the scientific problems being addressed today to better understand the waters of the world the combined capabilities of all nations and the talents of their scientists are needed more than ever. In the spirit of détente developed over the past several years between the United States and the Soviet Union it is therefore, appropriate that cooperative efforts between the United States and U.S.S.R. be promoted to further our understanding of the oceans and seas of the world, the World Ocean.

It was during the summit visit of Party Secretary Leonid Brezhnev to the United States in June 1973, that the United States and the Soviet Union concluded an Agreement on Cooperation in Studies of the World Ocean to further détente between the two nations. This agreement provides for the formal recognition by both governments of the desire to coordinate and cooperate in basic and applied oceanographic research studies of common interest. With the major oceanographic research programs and capabilities of both countries and the successful previous cooperation in oceanographic studies, this was an excellent area to foster the spirit of détente. The purpose of this article is to familiarize the U.S. scientific community and public with the agreement: its scope, its mode of implementation and some of the activities being carried out under its auspices.

DEVELOPMENT OF THE AGREEMENT

The basis for such cooperation dates back to the oceanography program of the International Geophysical Year in the late 1950's and to the subsequent international programs and projects which have served to bring together the scientists in both countries. They have worked together in programs sponsored by the Intergovernmental Oceanographic Commission such as the International Indian Ocean Expedition and more recently the Cooperative Investigations of the Caribbean and Adjacent Regions. Soviet and U.S. fisheries scientists also have worked together in both bilateral and multilateral studies of the abundance and distribution of fisheries resources of mutual interest. In addition, scientists from both countries have undertaken together investigations on selected oceanographic problems. It is upon

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this foundation of established cooperation in oceanography that the agreement is based.

The agreement itself was an outgrowth of earlier U.S.-U.S.S.R. Agreements on Cooperation in the Fields of Science and Technology and on Exchanges and Cooperation in Scientific, Technical, Educational, Cultural and Other Fields. Under these earlier agreements, a group of oceanographers from the United States, headed by Dr. William Nierenberg, Director of the Scripps Institution of Oceanography, visited the Soviet Union in 1972. In return, a group of Soviet oceanographers, headed by Academician Leonid Brekhovskikh, of the Academy of Sciences, U.S.S.R., visited the United States later in 1972. These visits included tours of facilities and discussions with scientists in both countries. From them, a number of research areas of interest to the scientists of both countries were identified. These exchanges and the resulting areas of joint interest that were identified from them were the scientific basis upon which the agreement was developed. In the spring of 1973, during the preparations for the summit visit of Secretary Brezhnev to the United States, the possibility of a formal agreement became apparent and detailed discussions were held in May 1973 in Moscow. From these discussions culminated the agreement which was signed on June 19, 1973.

OUTLINE OF THE AGREEMENT

The Agreement outlines the scientific areas of cooperation between the two nations; the methods by which such cooperation is to be carried out; and the means for developing and implementing cooperative activities.

The initial areas of cooperation denoted under article II of the agreement are:

- Large-scale ocean-atmosphere interaction, including laboratory studies, oceanic experiments, and mathematical modelling of the ocean-atmosphere system.

- Ocean currents of planetary scale and other questions of ocean dynamics.

- Geochemistry and marine chemistry of the World Ocean.

- Geological and geophysical investigations of the World Ocean, including deep sea drilling for scientific purposes.

- Biological productivity of the World Ocean and the biochemistry of the functioning of individual organisms and whole communities in the World Ocean.

- Intercalibration and standarization of oceanographic instrumentation and methods.

There is also the provision for other areas of cooperation to be added by mutual agreement. However, as yet, no new areas have been added or proposed by either side.

According to the agreement, the means of carrying out cooperation between the two countries is to be through joint research projects and programs, through the exchange of scientists, through the exchange of scientific and technical information, through jointly sponsored meetings, and through participation in multilateral activities sponsored by international scientific organizations. Though these forms of implementation vary among the projects now being developed,

most of these modes of cooperation are being carried out in one or more projects. There is also a provision to facilitate the use of port facilities of the two countries for ships' services and supplies in the course of carrying out cooperative activities. This is to facilitate field projects, particularly those involving scientists from one country participating in a project aboard the ship of the other country.

The actual implementation of the agreement is the responsibility of a U.S.-U.S.S.R. Joint Committee on cooperation in World Ocean Studies. This Joint Committee approves the specific projects and programs to be included under the agreement, it designates the appropriate agencies and organizations that are to be responsible for carrying out specific activities; and, as appropriate, it makes recommendations to the two governments concerning the agreement and its activities. In addition, each country has an Executive Agent responsible for maintaining contact with the other side and for coordinating and supervising the development and implementation of cooperative activities. For the United States the Executive Agent is the Department of Commerce with the National Oceanic and Atmospheric Administration being delegated this responsibility. For the Soviet Union it is the Academy of Sciences, U.S.S.R., with the State Committee for Science and Technology providing the Executive Secretariat support.

It is also specified in the agreement that it is to remain in force for 5 years and may be modified or extended by mutual agreement.

The full text of the agreement is provided in appendix A.

IMPLEMENTATION OF THE AGREEMENT

Following the signing of the agreement, the U.S. side of the Joint Committee on Cooperation in World Ocean Studies was established as the principal policy group to guide and direct the associated U.S. efforts. The committee is chaired by the Administrator of the National Oceanic and Atmospheric Administration (NOAA), of the Department of Commerce, the Executive Agent. Other members include the Under Secretary of the Navy, as Vice Chairman, and policy level officials representing the National Science Foundation (NSF) and the Department of State. In addition, the National Advisory Committee for the Oceans and Atmosphere (NACOA) and the National Academies of Science and Engineering provide members. The committee functions with a Secretariat from NOAA, NSF and the Office of Naval Research, the principal Federal agencies sponsoring oceanographic research involved in the agreement. The present committee membership is shown in Appendix B.

The first task of the U.S. committee was to develop projects for cooperation with the Soviet Union to be considered at the first Joint Committee meeting. The initial projects considered were primarily those developed as a result of the Nierenberg/Brekhovskikh exchange. A fundamental criteria for the selection of projects has been established which requires all such projects accepted by the U.S. side to have a Federal agency sponsor. This requirement is to insure that the United States fulfills its obligations under the agreement and does not develop or agree to participate in projects unless resources for carrying them out are available.

The U.S. Committee reviews and approves all projects before they are implemented under the agreement. Similarly, the Soviet side of the Joint Committee reviews and approves all projects. In addition, each U.S. Committee member has been designated as the U.S. cochairman of a Working Group of experts for one of the areas of cooperation under article II of the agreement. At the first meeting of the Joint Committee, Working Groups of experts from both countries were established to develop and implement cooperative activities such as, research projects, data exchanges, workshops, and scientists exchanges. In addition to the U.S. cochairman from the Joint Committee membership, the U.S. memberships in the Working Groups include a Federal area coordinator, who acts in the capacity of Executive Secretary and coordinates its activities. This coordinator is usually from the Federal agency which sponsors a major part of the U.S.-related research. The other U.S. members of the Working Group are leading scientists from academic institutions and Federal agencies and laboratories. These U.S. scientists meet jointly at least annually with their Soviet counterparts. It is through them that new proposals are developed and cooperative activities implemented. They alternately meet in the United States and Soviet Union and usually undertake a tour of related facilities to provide further background for developing cooperation.

The recommendations and activities of the Working Groups are in turn reviewed and considered for approval by the Joint Committee. Each side independently considers the proposals of the Working Groups and assesses the results of the cooperative efforts. At the meetings of the Joint Committee the progress being made in each of the areas of cooperation is reviewed and new proposals are jointly approved as appropriate.

The Joint Committee meets approximately every 12 to 18 months alternately in the United States and Soviet Union. The initial meeting was held in Washington, D.C., in February 1974 and the second meeting took place in Moscow in May 1975. The next meeting is planned for the fall of 1976 and is scheduled to be held in the United States. These meetings are usually followed by a postmeeting tour of facilities for familiarization with projects and laboratories. Following the first meeting in the United States, the Soviet delegation visited the Virginia Institute of Marine Sciences as well as facilities of the University of Miami and NOAA in Miami and the Texas A. & M. University. In return, the U.S. delegation to the second meeting in the U.S.S.R. visited facilities in Odessa, including a research vessel, as well as facilities in Sevastopol, Gelendzhik and Batumi.

COOPERATIVE ACTIVITIES

There is now a total of 15 cooperative projects agreed to by both sides: with 3 projects in the area in ocean-atmosphere interaction; 2 projects concerning ocean currents and dynamics; 6 projects in the area of marine geology, geophysics and geochemistry, including deepsea drilling; 3 studies of biological productivity; and 1 project concerning instrumentation. With the exception of the area of geochemistry and marine chemistry, there are cooperative activities in all areas of the agreement. These activities are predominantly joint

field investigations extending over several years from planning, through field operations to data analysis. They are being, or are scheduled to be, carried out in the Atlantic, the Pacific, the Indian and the southern oceans aboard vessels of both countries.

The projects, which were approved at either the First Joint Committee Meeting in February 1974 or the Second Joint Committee Meeting in May 1975, are as follows for each of the areas of cooperation:

Large-scale ocean-atmosphere interaction, including laboratory studies, oceanic experiments, and mathematical modeling of the ocean-atmosphere system.

Both countries have been active participants in the oceanographic part of the multinational GARP Atlantic Tropical Experiment (GATE) organized by the International Council of Scientific Unions and the World Meteorological Organization. In the summer of 1974, the field phase of this, the largest and most complex international scientific experiment ever attempted, was conducted. Its objective was to improve our understanding and our ability to model the processes which determine global weather and climate and their variations. The oceanographic phase of this experiment consisted of descriptive studies of the tropical current system, the study of the dynamic response of the ocean to atmospheric forcing, the study of equatorial current systems, the study of upper layer processes in relation to atmospheric convective cloud systems, and the energy budget of the mixed layer of the ocean. The United States and Soviet Union had 9 and 13 ships respectively involved in this field experiment, which had the central scientific objective to determine how the different scales of weather systems in the tropics interact with each other and with the underlying ocean.

Recognizing the significance of this major experiment and the contributions being made by both countries, they agreed to foster cooperation under the agreement to further ensure success of the field phase of the experiment. As a result, the *Akademician Kurchatov* deployed U.S. buoys as part of a multinational equatorial array to investigate the equatorial undercurrent. Two U.S. scientists also conducted current profiling operations from aboard the vessel. In addition, an intercomparison of shipboard salinometers used by both countries during the field program was carried out and a common format was adopted to facilitate the exchange of data.

Much further effort is still required in the analysis of the GATE data and for planning for the First GARP Global Experiment. The two countries have agreed to extend their efforts and seek to jointly pursue those objectives. As part of these efforts, plans are being considered for a coordinated oceanographic study in the monsoon region of the Indian Ocean to understand its response to wind stress. Both Soviet and U.S. scientists have been conducting research in the Indian Ocean and plans for such work are to be coordinated with a view toward joint activities, including participation by Indian scientists and scientists from other countries.

The Office of Naval Research and the National Science Foundation, through its International Decade of Ocean Exploration (IDOE), are jointly sponsoring a North Pacific Experiment (NORPAX) which is to study fluctuations in the upper layers of the North Pacific Ocean and the relation of these fluctuations to the overlying and adjoining

atmosphere. The time scales of such fluctuations range from months to years and the spatial scales in excess of 1,000 kilometers. It is a major field project involving vessels and buoys and participation by scientists from many U.S. institutions. The results from this study are expected to contribute to improved prediction of weather and climate for the northeastern Pacific Ocean and North America. Recognizing the interests of the U.S.S.R. in marine meteorology and oceanography, the United States has proposed that the U.S.S.R. participate in this major experiment. As a result, the possibility of carrying out a cooperative large-scale ocean-atmosphere interaction study has been under consideration since the first meeting of the Joint Committee in February 1974. At that time both sides agreed to explore possible cooperative studies in that region and specific proposals are to be considered by a group of experts for approval by the Joint Committee. The Hydrometeorological Service of the U.S.S.R. has vessels for such oceanographic and marine meteorological research. Six of these vessels are located in the Far East. With such capability the U.S.S.R. could make an important contribution to this experiment to better understand the influence of the oceans upon weather and climate.

Each country also has conducted its own oceanographic field studies in Drake Passage between South America and Antarctica and plans are being developed for further work in that area. The United States through the International Southern Ocean Studies is investigating the dynamic processes in the southern ocean and their relation to oceanic and atmospheric circulation patterns. During January to March 1975 the first dynamic response and Kinematics Experiment (F DRAKE) under this program was carried out by the United States in Drake Passage. The Soviet Union also is investigating the structure of the Antarctic circumpolar current in Drake Passage under its polar experiment south (polex-s) program and, it too, conducted studies in Drake Passage during December 1974 and January 1975. These two investigations though carried out independently were complementary and provide an expansion of coverage and observation that will enhance the understanding of dynamics of the southern ocean. Experts from both countries have met to coordinate this work and are developing further cooperation for 1976.

Ocean Currents of Planetary Scale and Other Questions of Ocean Dynamics

To further our understanding of the role of medium-scale motions in the oceans, both United States and Soviet scientists have been concerned with such motions occurring within the Atlantic Ocean. In the United States a major research effort has been the midocean dynamics experiment (MODE), sponsored under the International Decade of Ocean Exploration of the National Science Foundation. The Soviet scientists similarly have initiated a major moored current-meter study, the POLYGON experiment, in the North Atlantic Ocean. Rather than being duplicative and the studies are complementary. Consequently, to better advance the knowledge gained from these separate efforts toward understanding the theory of eddy processes in the oceans both countries agreed to develop a joint field project (POLYMODE).

The main scientific objectives of the resulting POLYMODE project are:

- (i) A kinematical and descriptive study of the eddy field including eddy-eddy interactions, on significantly longer time and large space scales than has until now been possible;
- (ii) The determination of local dynamical balances in a typical mid-oceanic region;
- (iii) The determination of contributions to the eddy transports of momentum, heat, and energy and their meridional distribution, and of the interaction of eddies with the mean circulation;
- (iv) The exploration of mechanisms of production, transformation, and dissipation of eddy energy;
- (v) The development and testing of numerical models of oceanic mesoscale and of the general ocean circulation including (explicitly and implicitly) the mesoscale eddies for the purposes of forecasting, process investigation, and coupling to atmospheric models.

Although POLYMODE involves a number of continuing scientific activities, the principal experiment is scheduled for 1977. A series of joint planning meetings are now being held periodically in both countries to develop updated working plan. The core of the 1977 experiment will consist of density surveys, current meter moorings and SOFAR floats.

Prior to the 1977 experiments, however, joint field activities will include intercomparison cruises on the *Akademik Kurchatov* and an initial survey of the density field in the POLYMODE region aboard the *Akademik Vernadsky*. In early 1975 a joint cruise was conducted for the trial mooring of U.S. current meters from Soviet vessels.

Present field programs such as POLYMODE are providing new data for the parameterization of small scale effects in ocean circulation models and should contribute to increasing the accuracy of such models. Both the United States and Soviet Union are active in the development of numerical models of ocean circulation. The United States has systematically been developing numerical models of ocean circulation which have been verified against existing temperature and salinity data for the World Ocean. Similarly, the Soviet Union has been active in numerical modeling of the ocean at several of its leading institutions, including the computer center in Novosibirsk. Consequently, both countries agreed that mutual benefits could be derived from uniting these efforts with an improvement in the present knowledge of large-scale ocean circulation and its interaction with the atmosphere. A Soviet scientist is scheduled to visit the United States within the next year and collaborate in studies with U.S. scientists. A meeting of experts also is to be held in the United States to develop a program of further cooperation.

GEOCHEMISTRY AND MARINE CHEMISTRY OF THE WORLD OCEAN

Based on the experience from the first 2 years of the agreement and endeavors to identify and develop projects of common interest in this area, it was mutually agreed upon by the Joint Committee in May 1975 that cooperative investigations in geochemistry and marine chemistry should not be considered in a separately identified

area of cooperation under the agreement. This action recognized the fact that chemistry is fundamentally related to other areas of the agreement, namely, marine geology and geophysics, ocean currents of planetary scale and other questions of ocean dynamics, and large-scale ocean-atmosphere interaction.

Cooperative geochemistry activities are now to be carried out primarily as part of the deep sea drilling project (DSDP) through geochemical examination of deep ocean sediment cores. Studies in marine chemistry are to be carried out as integral parts of the physical oceanographic studies in ocean dynamics and through studies of gas exchange in the ocean-atmosphere program area.

GEOLOGICAL GEOPHYSICAL, AND GEOCHEMICAL INVESTIGATIONS OF THE FLOOR OF THE WORLD OCEAN, INCLUDING DEEP SEA DRILLING FOR SCIENTIFIC PURPOSES

Most of the cooperative projects in geology, geophysics, and geochemistry are related in that they contribute information and ideas to be tested by the International Program of Ocean Drilling (IPOD). This has been the most active area of cooperation under the agreement with not only a broad scope of scientific projects, but also a wide geographic range of activities.

Within the agreement a separate memorandum of understanding between the National Science Foundation and the Academy of Sciences, U.S.S.R., for Soviet participation in deep sea drilling project was signed in February 1974 at the time of the First Joint Committee Meeting. The DSDP, involving the U.S. vessel *Glomar Challenger*, is aimed at obtaining geological samples of the sedimentary and crustal layers of the oceanic crust in order to develop geological models and determine the history of the sea floor. As a participant in the DSDP the Soviet Union, through the memorandum of understanding, contributes annually U.S. dollars amounting to a total of \$1 million. In turn, space is available for Soviet scientists on each cruise of the *Glomar Challenger* and during some cruises they serve as cochief scientists.

Soviet scientists have participated in research cruises during 1974 and 1975 aboard *Glomar Challenger* in areas ranging from Antarctic waters to the Norwegian Sea. Three Soviet scientists have served as cochief scientists and a research cruise was conducted in the Black Sea in May-June 1975 with a Soviet cochief scientist for that leg. In addition, the U.S.S.R. has contributed shore laboratory analyses of samples that have been included in the publication of the Initial Reports of the Deep Sea Drilling Project. More than 10 Soviet research institutions have been involved in the analysis of deep sea drilling samples. Both Soviet and U.S. research vessels engaged in other geological and geophysical projects under the agreement also have conducted site surveys for *Glomar Challenger* operations.

A program of marine geophysical research directed toward IPOD site surveys was conducted in the western part of a Trans-Atlantic Geophysical Traverse between Cape Hatteras and Cape Blanc, North Africa, in April-May 1975 by the U.S. vessel *Vema*. In February-March 1975, a joint study of the structure and processes of metal logenesis of the Mid-Atlantic Ridge Crest in the area of the Trans-Atlantic Geophysical Traverse was carried out aboard the Soviet vessel *Akademik Kurchatov*. In addition to providing site surveys for IPOD,

a world-standard crustal section across the central North Atlantic Ocean is being established to provide a transoceanic strip for which the seabed geophysics and bathymetry will be known and accurately mapped. Upon completion of the field work on this project, joint publications including an atlas will summarize the accomplishments.

Both Soviet and U.S. research vessels also are participating in a continuous detailed geological/geophysical investigation of the oceanic crust extending from the northwestern section of the Pacific to the Mid-Pacific Seamount Province. It is aimed at providing an understanding of the structure, historical development, and deformation of the plate, and areas of investigation are being chosen to complement the IPOD drill sites in the northwest Pacific. The first cruise under this project took place in the Sea of Okhotsk aboard the R/V *Mendeleev* of the U.S.S.R. Academy of Sciences during the months of August–October 1974. This joint U.S.–U.S.S.R. investigation was focused on the study of the geological deformation of the sedimentary strata accumulated along the southern margin of the Sea of Okhotsk. The deformation of the strata is directly related to the dynamic interaction between the Siberian margins of the Pacific and the Northwest Pacific Plate. In June 1975 the research vessel *Vema* from the United States conducted work in the Kuril-Kamchatka region and during the period of July–August 1975 the U.S. research vessels *Kana Keoki* and *Vema* conducted geophysical research in the region between the Emperor Seamounts and the Shatskiy Rise in the northwest Pacific Ocean. Scientists from the U.S.S.R. participated on both vessels. It is also anticipated that further joint work will be conducted in the region of the northwest Pacific Ocean in 1976 by the *Dmitri Mendeleev* and the *Vema* and the *Kana Keoki*. An exchange of scientists is scheduled to be carried out between the ships.

Another study concerned with the second layer of the ocean floor in selected regions of the Atlantic and northern Pacific Ocean is focusing on the origin of magnetism in the oceanic crust and the relationship of the magnetic anomalies to the tectonic structure. Joint research has been carried out by scientists from the Lamont-Doherty Geological Observatory and from the Institute of Oceanology of the Academy of Sciences, U.S.S.R. The first two-ship project was a study of the oceanic crust of the Icelandic platform. A second such project studied the acoustic velocity layering of the crust located under the flanks of the Mid-Atlantic Ridge. A third cruise with U.S. participation aboard the Soviet vessel *Akademik Kurchatov* has studied the structure of the Walvis Ridge in the South Atlantic Ocean. Additional cruises also are planned over the next year for further joint work in the North and South Atlantic Oceans.

Two new projects recently have been initiated to understand the parameters which effect sedimentation and also the origin and evolution of oceanic lithospheric plates. In order to learn about the dynamic processes that control sedimentation, erosion and transportation a joint project has been established. These processes must be understood if paleo-oceanographic conditions are to be correctly interpreted from cores of the ocean floor. With the interests of both countries in this problem, a committee of experts is being convened to formulate a program of cooperative experiments. Similarly, another group of experts is to develop a multistage program to investigate the oceanic

lithosphere and attempt to understand the dynamics that drive the features observed at the surface.

BIOLOGICAL PRODUCTIVITY OF THE WORLD OCEAN AND THE BIOCHEMISTRY OF THE FUNCTIONING OF INDIVIDUAL ORGANISMS AND WHOLE BIOLOGICAL COMMUNITIES IN THE WORLD OCEAN

Both countries have a strong interest in furthering biological and fisheries research. They work together in other major fisheries investigations of a bilateral or multilateral nature; and, while the projects initiated under the agreement are extensions of these other investigations, they are separate and distinct from them. To provide the broad framework for cooperation in this area, a 5-year program has been outlined. It includes the determination of the biological structure of the World Ocean, including the cause of fluctuations in population and production, as well as studies of biological production processes in along-shore areas, the biochemistry and physiology of marine organisms and the biology of marine fouling and benthic communities. Field and experimental research as well as theoretical studies are to be conducted. They will involve the mutual training of specialists in laboratories of both countries, joint expeditions workshops and symposiums.

Most of the cooperative activities are scheduled for the 1976-80 period, however, initial efforts have commenced. A joint study of the bioproductivity system of the Northwest Atlantic has begun. It is to learn about the distribution and to assess the biological resources of the area. The study of replenishment and the relationship between stock and replenishment also is to be included. To date, joint investigations were carried out in 1974 on board the Soviet research vessel *Khronometr* in the northwest Atlantic Ocean to evaluate hydroacoustical methods of assessing living resources. The resulting data from the field programs are now being processed in U.S. and Soviet scientific laboratories. The Soviet research vessel *Poisk*, with three U.S. experts on board, and several other vessels also worked in the northwest Atlantic Ocean in March and April 1975 on studies of the bioproductive processes in this area. Possibilities for other joint field work are now being considered.

There also has been discussion for cooperation in the coastal upwelling system analysis (CUEA) program which has involved U.S. institutions as well as institutions from seven other countries. Field work has been conducted since 1972 off the west coast of North America and the northwest coast of Africa. The U.S.S.R. participated in the field work off the west coast of North America and the northwest coast of Africa, and discussions are planned for future participation by the U.S.S.R.

A variety of activities concerning the biochemistry and physiology of marine organisms are being planned. A seminar is to be held in the U.S.S.R. to discuss joint research on morphology and physiology of sex cycles of marine fish and invertebrates. In late 1975 a workshop also is scheduled to be held in Beaufort, N.C., to summarize all previous research on marine fouling and benthic communities and to coordinate future joint work. In 1976 a symposium is scheduled to be held in the United States to discuss current scientific work and plans for cooperation for work on biologically active substances.

With coastal ecosystems frequently being altered by man's activities and with the importance to both countries of a better understanding of these ecosystems, coordinated joint field studies also are expected to be carried out for the purpose of studying the coastal ecosystems of beds of marine grasses, seaweed, and concentrations of epifauna, and seaweed benthos.

INTERCALIBRATION AND STANDARDIZATION OF OCEANOGRAPHIC INSTRUMENTATION AND METHODS

The many field projects being carried out under the agreement will result in large quantities of scientific data, and both countries recognize the advantage of acquiring such data from instrumentation with common standards and comparable calibration procedures. As an initial effort toward this goal, three measurement parameters have been selected for standardization and intercalibration. They are temperature, salinity and current velocity.

During the meeting of the Working Group of Experts for this area in May 1975, an actual comparison was made between a U.S. reference temperature instrument and a Soviet reference temperature instrument. As a result they can now be used for bilateral calibration requirements. As for salinity measurements, the goal is to establish comparability of salinity—conductivity standards. First, the measurement uncertainties of the standards are to be determined and then standards selected with a maximum uncertainty level of 10 parts per million between the United States and the Soviet Union. For current velocity, the overall goal is to establish measurement comparability of U.S. and Soviet current meters. A laboratory investigation of the dynamic responses of current meters is planned with a follow-on field intercomparison of selected current meters.

It is expected that this area of cooperation will become increasingly important as the field projects from the other areas are implemented.

One of the important benefits that results from the above cooperative activities is the data and information derived from them. Consequently, all processed and validated data and information from these activities are to be exchanged between designated centers in each country. In addition, these results are to be accessible to other nations through the ICSU/IOC World Data Center System for use by all.

SUMMARY

In summary, the agreement has provided a means of facilitating cooperative efforts by the two nations of the world with the most extensive interests in the oceans and breadth of related activities. By bringing together these capabilities and interests to work cooperatively on problems of mutual interest, the results should benefit all mankind as well as the United States and the Soviet Union.

Results from the planned or ongoing studies under the agreement are expected to further our understanding (a) of the ocean's influence upon weather and climate and in turn our ability to improve weather prediction; (b) of the processes taking place within the oceans which are important for fishery assessments, studies of oceanic pollution and environmental forecasts; (c) of the sea floor and the processes which generate continental margins and operate along the midoceanic

ridges; and (d) of the nature of living resources of the World Ocean and the processes associated with productivity. It is hoped that such results will advance man's understanding of the potential of the World Ocean through wise use as well as his ability to assess the impacts of man upon the ocean environment. Such understanding is needed by all nations of the world.

Much of the material for this article has been drawn from the discussions and reports of the scientists involved in the projects under the agreement. I wish to express my appreciation to those many scientists who are contributing to furthering the relations and understanding between the United States and the Soviet Union.

APPENDIX A

AGREEMENT ON COOPERATION IN STUDIES OF THE WORLD OCEAN

AGREEMENT BETWEEN THE GOVERNMENT OF THE UNITED STATES OF AMERICA AND THE GOVERNMENT OF THE NATION OF SOVIET SOCIALIST REPUBLICS ON COOPERATION IN STUDIES OF THE WORLD OCEAN

The Government of the United States of America and the Government of the Union of Soviet Socialist Republics;

Recognizing the importance of comprehensive studies of the World Ocean for peaceful purposes and for the well-being of mankind;

Striving for more complete knowledge and rational utilization of the World Ocean by all nations through broad international cooperation in oceanographic investigation and research;

Aware of the capabilities and resources of both countries for studies of the World Ocean and the extensive history and successful results of previous cooperation between them;

Desiring to combine their efforts in the further investigation of the World Ocean and to use the results for the benefit of the peoples of both countries and of all mankind; and

In pursuance and further development of the agreement between the Government of the United States of America and the Government of the Union of Soviet Socialist Republics on Cooperation in the Fields of Science and Technology of May 24, 1972, and in accordance with the agreement on Exchanges and Cooperation in Scientific, Technical, Educational, Cultural and Other Fields of April 11, 1972, and in accordance with the agreement on Cooperation in the Field of Environmental Protection of May 23, 1972;

Have agreed as follows:

ARTICLE 1

The Parties will develop and carry out cooperation in studies of the World Ocean on the basis of equality, reciprocity, and mutual benefit.

ARTICLE 2

In their studies of the World Ocean, the Parties will direct cooperative efforts to the investigation and solution of important basic and applied research problems. Initially, cooperation will be implemented in the following areas:

a. Large-scale ocean-atmosphere interaction, including laboratory studies, oceanic experiments, and mathematical modeling of the ocean-atmosphere system.

b. Ocean currents of planetary scale and other questions of ocean dynamics.

c. Geochemistry and marine chemistry of the World Ocean.

d. Geological and geophysical investigations of the World Ocean, including deep sea drilling for scientific purposes.

e. Biological productivity of the World Ocean and the biochemistry of the functioning of individual organisms and whole biological communities in the World Ocean.

f. Intercalibration and standardization of oceanographic instrumentation and methods.

Other areas of cooperation may be added by mutual agreement.

ARTICLE 3

Cooperation provided for in the preceding Articles may take the following forms:

a. Joint planning, development, and implementation of research projects and programs;

b. Exchange of scientists, specialists, and advanced students;

c. Exchange of scientific and technical information, documentation, and experience, including the results of national oceanographic studies;

d. Convening of joint conferences, meetings, and seminars of specialists;

e. Appropriate participation by both countries in multilateral cooperative activities sponsored by international scientific organizations;

f. Facilitation by both Parties, in accordance with laws, rules and regulations of each country and relevant bilateral agreements, of use of appropriate port facilities of the two countries for ships' services and supplies, including provision for rest and changes of ships' personnel, in connection with carrying out cooperative activities.

Other forms of cooperation may be added by mutual agreement.

ARTICLE 4

In furtherance of the aims of this Agreement, the Parties will, as appropriate, encourage, facilitate and monitor the development of cooperation and direct contacts between agencies, organizations and firms of the two countries, including the conclusion, as appropriate, of implementing agreements for carrying out specific projects and programs under this agreement.

ARTICLE 5

1. For implementation of this agreement, there shall be established a U.S.-U.S.S.R. Joint Committee on Cooperation in World Ocean Studies. This Joint Committee shall meet, as a rule, once a year, alternately in the United States and the Soviet Union, unless otherwise mutually agreed.

2. The Joint Committee shall take such action as is necessary for effective implementation of this agreement including, but not limited to, approval of specific projects and programs of cooperation; designation of appropriate agencies and organizations to be responsible for carrying out cooperative activities; and making recommendations, as appropriate, to the Parties.

3. Each Party shall designate its Executive Agent which will be responsible for carrying out this agreement. During the period between meetings of the Joint Committee, the Executive Agents shall maintain contact with each other and coordinate and supervise the development and implementation of cooperative activities conducted under this agreement.

ARTICLE 6

Nothing in this agreement shall be interpreted to prejudice other agreements between the Parties or commitments of either Party to other international oceanographic programs.

ARTICLE 7

Each Party, with the consent of the other Party, may invite third countries to participate in cooperative activities engaged in under this agreement.

ARTICLE 8

1. This agreement shall enter into force upon signature and remain in force for 5 years. It may be modified or extended by mutual agreement of the Parties.

2. The termination of the agreement shall not affect the validity of implementing agreements concluded under this agreement between interested agencies, organizations and firms of the two countries.

DONE at Washington, this 19th day of June, 1973, in duplicate, in the English and Russian languages, both texts being equally authentic.

For the Government of the United States of America:

WILLIAM P. ROGERS.

For the Government of the Union of Soviet Socialist Republics:

A. GROMYKO.

APPENDIX B

U.S. MEMBERSHIP ON THE U.S./U.S.S.R. JOINT COMMITTEE ON COOPERATION IN STUDIES OF THE WORLD OCEAN

Dr. Robert M. White	Administrator, National Oceanic and Atmospheric Administration, U.S. Department of Commerce (Chairman, U.S. side of Joint Committee).
Mr. H. Tyler Marcy	Assistant Secretary of the Navy for Research and Development (Vice Chairman, U.S. side of Joint Committee).
Dr. Robert E. Hughes	Assistant Director, National and International Programs, National Science Foundation.
Dr. William Hargis	National Advisory Committee on Oceans and Atmosphere.
Ambassador Rozanne Ridgeway	Department of State.
Dr. Arthur E. Maxwell	Ocean Affairs Board, National Academy of Sciences.
Dr. Warren S. Wooster	Ocean Affairs Board, National Academy of Sciences.
Mr. Phillip Eisenberg	Ex Officio Member: Marine Board, Assembly of Engineering, National Research Council.
Dr. William A. Nierenberg	Director, Scripps Institution of Oceanography.

U.S. SECRETARIAT

Dr. Donald P. Martineau	Deputy Associate Administrator for Marine Resources, NOAA, U.S. Department of Commerce (Executive Secretary, U.S. side).
Dr. Ned A. Ostenson	Deputy Director, Ocean Science Technology Division, Office of Naval Research.
Mr. Feenan D. Jennings	Head Office for the International Decade of Ocean Exploration, National Science Foundation.
LCDR Nicholas A. Prael	Assistant to Executive Secretary.

A COMPARISON OF THE STRENGTHS AND WEAKNESSES OF THE UNITED STATES AND THE SOVIET UNION IN OCEAN CAPABILITIES¹

(By Herman T. Franssen)²

* * * In tracing the direct dependence of mankind on the world ocean over the entire course of its centuries of history, it is impossible not to note how the ability of peoples to learn to appreciate the ocean, and to use it for their own needs, directly affects the growth of the political prestige of the country and its economic and political power.

S. G. GORSHKOV,
Admiral of the Fleet of the Soviet Union.

SUMMARY AND INTRODUCTION

The United States is, and has been for two centuries, a typical maritime power. From the days of the early settlements in Virginia and New England, the American people looked to and beyond the oceans for trade, ideas, and culture. Today, as well as in the past, most of the Nation's trade has been East-West rather than North-South. The United States was settled with people from overseas, and it was threatened only by potential adversaries across the seas. Our ancestors had important fishing interests in both coastal waters and distant waters (whaling). They traded products all around the world in U.S.-flag ships constructed in the United States. In ocean technology, the United States played an important role with the construction of the Yankee clippers (the fastest ships of their times), the first steamboat, and the first armored modern warship with turret guns.

The United States reached its zenith as a maritime power in the period immediately following World War II. At that time it had at its disposal the strongest armada of naval and merchant vessels ever assembled by any one nation. Aware of their complete superiority at sea, the U.S. Navy concentrated on projection of power on overseas coasts. There was no need at that time to worry about sea control. Overseas trade was not as vital to the economic well-being of the Nation as it is today, but in spite of this more than two-thirds of total U.S. overseas trade was shipped in U.S.-flag vessels. American fishermen supplied most of the marine fisheries products consumed in the Nation, and the United States had taken an early overall lead

¹The author would like to express his gratitude to the various reviewers of this study, particularly Jack Morse, Alva Bowen, Francis Hoerber, and Adm. Elmo Zumwalt (U.S. Navy, ret.)

²The author is an analyst in science and technology with the Ocean and Coastal Resources Project of the Congressional Research Service of the Library of Congress. Dr. Franssen has published numerous articles and congressional studies on Energy, Ocean Resources Development, Law of the Sea, Scientific Research at Sea and Technology Transfer. Prior to joining CRS in 1974, Dr. Franssen taught and researched at the Fletcher School of Law and Diplomacy Medford, Mass., the Woods Hole Oceanographic Institution, Woods Hole, Mass., and the Scripps Institution of Oceanography, University of California at San Diego.

in ocean science and technology. It can be said, without much hesitation, that America ruled the waves in the period immediately following World War II.

The situation has changed considerably over the past 25 years. Although U.S. dependence on the oceans for both national security and economic well-being has dramatically increased during the past quarter of a century, awareness of ocean dependence has not always been translated into an active policy geared to optimizing the ocean and its resources for the well-being of the Nation. The United States has neglected its merchant marine and coastal fisheries, and in recent years marine science and technology have received much less Government attention than during the decades of the fifties and sixties. Moreover, for a variety of reasons elaborated on in this chapter, the U.S. Navy may no longer be able to fulfill properly its sea control and power projection missions in areas of vital importance to the United States and its allies.

By contrast, the Soviet Union, traditionally a land power, has emerged from its postwar position of maritime insignificance to its newly acquired status as one of the world's leading maritime powers. The Soviet Union, which is not as bound by centuries of maritime tradition, has developed a navy which is primarily designed to interfere with U.S. naval missions of sea control and power projection in the North Atlantic and North Pacific Oceans. It designed and developed a modern distant-water fishing fleet and a merchant marine serving both its economic and its political and national security interests. Although behind the United States in overall marine scientific and technological capability, the Soviets are making rapid progress in these areas. Large resources in manpower and money have been allocated to the building of the world's largest ocean-going oceanographic fleet. A massive infusion of Western shipbuilding, offshore drilling equipment, and other marine technology have helped to upgrade Soviet technology in these areas.

The Soviet Union recognized, some 20 years ago, the importance of the oceans, as a source of animal protein and raw materials, and the economic value of the merchant marine, in an era of expanding world trade. It also recognized the political and national security value of an expanding merchant marine serving all of the world's major trading routes; a merchant marine designed to optimize both economic and national security needs (arms shipments). The development of the American Polaris submarines emphasized the strategic importance of the oceans, and the Cuban missile crisis taught the Soviets that they could not protect their overseas allies without a blue-water capability. Top-level recognition of the growing importance of the oceans was translated into a carefully designed ocean policy which integrated the various elements of seapower. No element of seapower was allowed to develop without regard for its impact on other such elements.

This chapter attempts to compare various aspects of Soviet and U.S. ocean capabilities and to examine the implications of Soviet ocean development for the United States. It is important, in any analysis of Soviet and U.S. ocean capabilities, to keep in mind the actual dependence of the two nations on the oceans. The United States is, except as to marine fisheries, far more dependent on the oceans than is the Soviet Union for economic well-being and national

security, but this dependence is not yet widely recognized in this country. As a result, the United States continues to lag behind the Soviet Union in the development and implementation of a coherent national oceans policy.

TABLE NO. 1.—*Comparative Numerical Strengths of United States and Soviet Ocean Activities*

	United States	U.S.S.R.
Size merchant fleet in 1946 (in deadweight tons)	50,820,000	2,500,000. ¹
Size merchant fleet in 1974	² 15,280,000	15,100,000. ³
Number of merchant vessels in 1946	4,888	600. ⁴
Number of merchant vessels in 1975 (Dec. 31, 1975)	580	2,352.
Merchant marine manpower, 1975	55,000	About 90,000.
Men in merchant marine officers training program	⁵ 2,499	5,000 full-time. ⁶ 4,000 part-time.
Oceanographic research ships, 1975	120	200.
Scientists and technicians in oceanography, 1975	2,000–3,000	7,000–8,000.
Fishing vessels over 100 gross tons, 1974	1,019	About 4,450.
Number of fishermen, 1975—full-time	86,800	About 250,000.
Total marine catch, 1975 (metric tons)	2,600,000	9,600,000.
Fishing vessels, 1974 (tonnage) in gross tons	586,253	5,383,000.
Active naval vessels in 1946 (numbers)	2,630	852.
Active naval vessels:		
Major surface combatants (1976)	172	229.
Submarines (1976)	116	330.
Naval aircraft (1975)	3,542	768.
Manned Research submersibles	35	8.
Aquaculture	Limited program	Among the largest and most comprehensive in the world.
Deepsea mining	Commercial seabed mining capability.	No commercial seabed mining capability.
Offshore oil production, 1975 (in barrels)	495,280,000	84,000,000. ⁶
Offshore natural gas production 1972 (in billions of cubic feet)	4,257	N.A.

¹ Includes about 500,000 deadweight tons provided by United States under lend-lease.

² Active fleet only; reserve fleet excluded (mostly old-fashioned or uneconomical).

³ Includes about 500,000 deadweight tons provided by United States under lend-lease (still registered).

⁴ Includes 43 vessels provided by the United States under lend-lease.

⁵ U.S. figure per June 1, 1974; U.S.S.R. figure for 1973

⁶ United States has superior technology for offshore drilling and production.

Source: Various Government and non-Government sources.

UNITED STATES-SOVIET CONVENTIONAL MILITARY CAPABILITIES AT SEA

QUANTITATIVE CONSIDERATIONS³

Over a period of about two decades, the Soviet Union has grown from being a minor naval power with primarily coastal capabilities to become a major seapower, capable of challenging the supremacy of the U.S. Navy throughout the world. At the end of the Second World War, the Soviet Navy consisted of little more than a few pitiful coastal boats under the control of the Soviet Army. Its mission was primarily one of coastal and regional defense; it had very little

³ Comparative strategic nuclear submarine capabilities are not treated in this chapter, because they are generally treated in the context of the total nuclear deterrent of the superpowers.

blue water capability. As late as 1965, the Soviet Navy spent less than 4,000 ship-days on distant deployments. During the same year, the U.S. Navy spent more than 65,000 ship-days on distant deployment.⁴

By contrast, the United States was, at the end of the Second World War, the world's dominant naval power, with unchallenged control of world oceans. Its industrial infrastructure, which included an incredible capacity to produce and equip naval vessels, was intact. The U.S. Active Fleet in 1948 consisted of 2,630 vessels. During the same year, the Soviet Union had only a few hundred coastal vessels and a few largely outdated, major combat vessels.

The situation changed during the 1960's, when the Soviet Union underwent a vast naval shipbuilding program. This Soviet effort coincided, during the latter part of that decade, with a substantial contraction of the U.S. Fleet due to bloc obsolescence and a slower construction program. Numbers alone, of course, can be misleading in any comparison of naval capabilities. It is easy, but misleading to add together ships with completely different capabilities and then to compare the totals. For example, table II shows an Active U.S. Naval Fleet of 477 vessels in April 1976, and an active Soviet naval fleet of 2,329 vessels.⁵ Of the 2,329 Soviet craft, 1,770 were classified as minor combatants, amphibious ships, and auxiliaries. The U.S. Navy has only 189 such vessels, which include patrol craft, minesweepers, and amphibious ships. The Coast Guard has a number of small and medium-sized vessels, not included in this tabulation. Comparing major combatants only, the United States has 13 aircraft carriers in contrast to 1 Soviet V/STOL carrier. The Soviet Union has, on the other hand, an impressive lead in the number of attack submarines.

⁴See: Representative Les Aspin, "The Trend in the Naval Balance, a Fact Sheet," Washington, D.C., July 1976, p. 15. According to Representative Aspin, the number of ship-days on distant deployment reached an all-time low for the U.S. Navy in 1974 (about 37,000) but is growing again. The Soviet Navy increased its ship-days on distant deployment to more than 20,000 in 1974, but dropped to below 20,000 in 1975. *Ibid.*, p. 15.

⁵See table II. Does not include U.S. Coast Guard, Maritime Sealift Command, and NOAA.

TABLE 2.—Comparison of United States and Soviet submarines, February 1976

	Soviets	United States
Submarine type:		
Ballistic missile:		
Nuclear	¹ 55	41
Nonnuclear	20	0
Attack:		
Nuclear	10	65
Nonnuclear	150	10
Cruise missile:		
Nuclear	40	0
Nonnuclear	25	0
Total:		
Nuclear	135	106
Nonnuclear	195	10
Grand total	330	116

¹ Includes 34 *Yankee*- and 11 *Delta*-class modern ballistic-missile submarines.

Comparison of United States and Soviet active surface ships, February 1976

	Soviets	United States
Major combatants:		
Aircraft carriers	1	¹ 13
ASW helicopter carriers	2	0
Cruisers	32	26
Destroyers	87	² 69
Frigates	107	64
Subtotal	229	172
Minor combatants:		
Missile patrol craft	135	0
Other patrol craft	540	8
Amphibious ships	80	61
Mine warfare ships	260	3
Auxiliaries	755	117
Subtotal	1,770	189
Total	1,999	361

¹ This total does not include the *Oriiskany*, an *Essex*-class carrier scheduled to be taken out of service at the end of fiscal year 1976.

² With the exception of two *Spruance*-class destroyers, all of these destroyers are 15 to 31 years old.

Source: Congressional Record, Apr. 8, 1976, p. H3081.

The Soviet Union also has an overwhelming lead in minor combatants, such as patrol boats and mine warfare ships and auxiliaries. It is quite possible, however, that auxiliaries include river dredges, barges, and so forth, which are not listed in any tabulation of U.S. forces. On the other hand, the United States has almost five times as many tactical naval aircraft: 3,543 for the United States versus 768 for the Soviet Union.⁶ Soviet naval long-range aircraft are equipped with ASM's; U.S. aircraft are not.

Some observers contend that any U.S.-U.S.S.R. comparison should include NATO ships. Several NATO members do have a blue-water

⁶ U.S. Senate, Committee on Armed Services. *United States-Soviet Military Balance; A Framework for Congress*. Washington, U.S. Government Printing Office, 1976, p. 6.

capability which, taken together, adds 398 vessels to the Western fleet, including destroyers, escorts, and 135 attack submarines.⁷ On the Soviet side, Warsaw Pact members (excluding the U.S.S.R.) have small navies with primarily coastal responsibilities.

Any comparison of naval strength which is limited to numbers, however, has little meaning. Differing strategies and doctrines determine forces. For example, there are now Soviet equivalents for the 13 U.S. aircraft carriers which consume 50 percent of the U.S. Navy budget. Breaking down by subcategories still provides no accurate picture of comparative naval strength. Some analysts make little if any distinction between a 90,000-ton *Nimitz*-class aircraft carrier and a small 1,000- to 3,000-ton ASW or mine warfare ship. Other analysts look at total tonnage or at naval and shipbuilding budgets. None of those assessments take account of such major factors as differing concepts and strategies (what the fleets are for), how well they can support the concepts, comparative costs and productivity in shipbuilding, and cost comparisons of manpower versus hardware.

On the other hand, comparing fleet sizes can serve a limited function. Carefully done, it gives some idea of relative growth over the past two decades. In times of peace, a large and impressive fleet can serve the useful political purpose of "showing the flag." Large numbers provide the capability to maintain more visibility abroad, especially in developing nations. While Soviet major combatants are generally smaller than U.S. equivalents, this fact is not always obvious to observers. Soviet vessels are heavily armed and look impressive. Even the smaller Soviet naval craft, or one of their large fleet of distant-water fishing trawlers or oceanographic research ships serve a psychological purpose, when seen as part of the enormous Soviet fleet behind it. It demonstrates power and thereby contributes to the impression of a Soviet Union which is now a seafaring nation of global importance. In any fleet comparison, it would be misleading to exclude all minor combatants. The small coastal craft make the Soviet Nation's coastline relatively invulnerable to naval attacks. Moreover, in some areas like the Eastern Mediterranean (where the United States until recent years had complete sea control), small craft contribute to the current balance. During the 1967 Arab-Israeli war, an Israeli destroyer was sunk by ship-to-ship missiles from a Soviet-built Egyptian patrol craft. Although this incident may be unique, the fact that a small patrol craft destroyed a ship 10 times its size indicates that small ships do represent a threat when they are equipped with modern weapon's technology. John Collins, Senior Specialist in National Security Affairs at the Congressional Research Service of the Library of Congress, summed up the United States-Soviet quantitative naval strength as follows:

Ten years ago, the Soviet Navy had already outstripped the United States 2 to 1 in attack submarines (336 to 169), but its major surface fleets had just begun to break out of their coastal cocoons and compete on high seas. Today, they have more major combatants in every category except aircraft carriers, and a virtual monopoly on surface-to-surface antiship cruise missiles, which are mounted on cruisers, destroyers, submarines and small craft. The Soviets have even surpassed the United States in numbers of amphibious ships, ending once dramatic U.S. dominance—not because they built many more, but because the United States has halved its force since 1965.⁸

⁷ Congressional Record, May 19, 1976, S7511.

⁸ U.S. Senate. Committee on Armed Services, "United States-Soviet Military Balance," op cit. p. 6.

It is important for the Congress to have access to accurate data on the Soviet Navy—its current size and composition, its construction programs, and, above all, its sea-denial capabilities. Such data are frequently presented in a confusing and simplistic fashion, which does not facilitate debate. Senator Leahy quoted an Associated Press release on Secretary of Defense Rumsfeld's appearance before a congressional committee, as follows: "Procurement of Soviet naval ships over the 1965-75 period exceeded the United States by 70 percent and by 90 percent in 1975."⁹ Elsewhere, Secretary Rumsfeld was quoted as saying that: "The Soviets have produced about 800 ships since 1965, during a period when the United States produced about 300 ships for its Navy."¹⁰ Table III shows that the most recent Department of Defense data indicate Soviet procurement of 829 ships and U.S. construction of 243 vessels between 1965 and 1975. However, of the 829 Soviet ships, at least 541 were small craft, used for operation in coastal waters. Only 49 out of the 243 U.S. ships constructed during the past decade belong to that category. In fact, in terms of total tonnage, the United States slightly outbuilt the Soviet Union during that period.

TABLE 3.—U.S./U.S.S.R. ship construction 1965-75

Range (tons)	United States			U.S.S.R.		
	Classes	Number	Tonnage	Classes	Number	Tonnage
Over 40,000	CV America, CV Kennedy, CVN Nimitz.	3	261,200			
20,000-40,000				CVSG Kiev	1	39,000
10,000-20,000	CGN California, LCC Blueridge, LKA Charleston, LPD Austin, LPH Iwo Jima, LSD Anchorage.	30	489,500	CHG Moskva	2	35,400
5,000-10,000	CG Belknap, CGN Truxton, DD Spruance, LST Newport.	30	247,800	CG Kara, CG Kresta, CG Kynda.	17	134,600
3,000-5,000	FF Garcia, FF Knox, FFG Brooke, WHEC Hamilton, AGFF Glover.	74	248,200	DDG Kashin, DD Krivak, LST Alligator.	40	171,500
1,000-3,000				FFL Mirka, FFL Petya, PCE Grisha, LSM Ropucha, LSM Polnocny).	72 1(7) 2(11)	83,600 (8,000) (18,900)
500-1,000	WMEC Reliance	13	12,600	PGG Nanuchka, MSF Natya, LCU Vydra (LSM Polnocny).	77 1(20) 2(54)	58,500 (15,000) (41,850)
100-500	PG Asheville, PTF, AGEH Plainview.	36	6,070	LCU MP-10, LCU SMB-1, PCL 50-1, PCE POTI PCH Turya, PT Shershen, PT MOL, PTC Stenka, PTG OSA, PTG Komar, PGM Shlepen, MSF Yurka, MSC Zhenya, MSC Vanya, MSC Sonya.	410 1(104)	110,100 (23,618)
Submarines:						
Ballistic missile (nuclear)		12	87,600		51	390,000
Attack:						
Nuclear		45	164,200		49	213,050
Diesel					45	99,000

¹ Ships constructed in U.S.S.R. for delivery to other countries.

² Ships added to Soviet OOB but constructed in Poland.

Source: Department of Defense.

⁹ Congressional Record, Apr. 13, 1976.

¹⁰ Defense Space Business Daily, Mar. 11, 1976.

Congressman Les Aspin of Wisconsin recently released data indicating that the United States outbuilt the Soviet Union in nuclear-powered attack submarines in the past 10 years.¹¹ Navy officials testified correctly before a congressional hearing specifically dealing with nuclear attack submarines that the Soviet outbuilt the United States in nuclear submarines in 1974 by 10 to 3, and in 1975 by 9 to 2, but they did not distinguish between attack submarines and ballistic-missile submarines.¹² Neither statement appears to be incorrect, but the use of different data creates confusion.

While Navy spokesmen are the first to warn that one should not add apples and oranges, some of their own spokesmen do just that at congressional hearings. It is unfortunate that, by using different sources or different starting dates (the Soviets started their major construction program in the 1960's; the United States began a significant replacement program in the 1970's), or by quoting numbers of ships or total tonnages constructed, different spokesmen of various interest groups have provided totally different interpretations of projected United States and Soviet naval strength. This kind of confusion diverts attention from the most important questions, which are:

(a) Does the United States currently have the kind of navy it needs to perform sea control and power projection missions?

(b) In view of the changing ocean environment and the perceived Soviet and minor power threat, what kind of navy does the United States need to meet the challenges of the 1980's and 1990's?¹³

COMPARATIVE CAPABILITIES

The relevant, but highly controversial, issue is which navy reflects the best concept for today's world, and which navy does the job it is designed to do better.¹⁴

The United States, with major allies overseas and growing dependence on foreign trade, must be able to use the seas for commercial and military traffic of all kinds. In other words, the United States

¹¹ New York Times, June 20, 1976.

¹² Ibid. Spokesmen for the Navy maintain that Congressman Aspin is correct in saying that the United States built more nuclear attack submarines than the U.S.S.R.—45 to 43—in the period 1966 to 1975. However, they argue that the United States shifted emphasis from building strategic submarines (SSBN's) to attack submarines (SSN's) in 1966. The Soviets did the reverse, outbuilding the United States 51 to 8 in the same period in strategic submarines. In total, the Navy maintains, the Soviet Union outbuilt the United States 94 to 53 in all categories of nuclear submarines.

¹³ Related to the debate concerning size and composition of the fleet of the future is the issue of propulsion of aircraft carriers and carrier task forces. The difference in cost between a conventional and an all-nuclear Navy are considerable and ought to be weighed against all other costs and benefits of a nuclear Navy. Alva Bowen of the Congressional Research Service calculated the difference between an 500- and 600-ship Navy at about \$17.7 billion (or 28.4 percent) over a period of 10 years. He also calculated that an all-nuclear shipbuilding program would cost over a period of 25 years about \$9 billion (or 21.9 percent) more than an all-conventional shipbuilding program, if four escorts are needed for each aircraft carrier task force. If, however, six escorts are planned for each carrier task force the difference between an all-nuclear and an all-conventional option would be \$18.4 billion (or 44.6 percent).

See: Alva M. Bowen, "Memorandum on Comparison of Costs of All-Nuclear vs. Non-Nuclear Navy, 1976-2001," Congressional Research Service (unpublished document), Washington, D.C., May 10, 1976.

See also: Senator Robert Taft, Jr., "A Modern Military Strategy for the United States," op. cit., p. 52.

Senator Taft's construction program would add about \$2.5 billion per year for ship construction, part of which would have to come from lowering the budget of a reduced Army.

¹⁴ Adm. Elmo Zumwalt, former CNO, quoted in Norman Polmar, "A Fleet for the Future: Some Modest Suggestions," Sea Power, April 1976, p. 12.

needs sea control. To meet foreign commitments, the U.S. Navy also has to make it possible to apply military power overseas. This need is called projection.¹⁵

The Soviet Union, which is not so heavily dependent on trade and with no major allies overseas, planned a concept and built the fleet that would deal most effectively with its most powerful potential opponent, the United States. Thus, the Soviet Navy is designed to disrupt or prevent U.S. sea control, as widely as possible, and thereby to make it impossible for the U.S. Navy to fulfill its projection mission.

In most cases it is easier to deny sea control than it is to maintain it. Thus, the Soviets have the easier task in general. Specifically, cutting communication lines requires fewer ships, less sophisticated equipment, and smaller risks than protecting such lines. A line of communication needs protection throughout its length, but it can be cut at any one point.¹⁶ During the Second World War, Germany almost won the naval war by attacking seaborne commerce to Great Britain. The German Navy did it with a vastly inferior surface fleet and a marginally less numerous submarine force. The Soviet Navy today is far better equipped in relative numbers and quality to perform such a sea-denial mission than was Germany during the Second World War.

It is clear that different missions mean different numbers, composition, and capabilities for U.S. and Soviet navies. The U.S. Navy should never be a carbon-copy of the Soviet Navy and vice versa. There is little disagreement about the need for a strong and balanced Navy, but there is growing controversy about the current ability of the Navy to control the seas and project U.S. power, and on the size, composition, propulsion, sonar, and missile systems required for these purposes.

The outcome of these debates will affect the defense budget substantially, and the Navy budget in particular. It could determine the Nation's future as a maritime power and, because of the importance of the oceans, the survival of the United States as a major economic entity.

There are two contrasting points of view on the current ability of the U.S. Navy to carry out its missions, the official view, and others. The official view, represented here by quotations from a speech by Navy Secretary J. William Middendorf and testimony by Adm. James L. Holloway III, the Chief of Naval Operations, holds that our Navy still has a slight edge over the Soviet Navy and can carry out its current missions with available combatants. This view is shared by some key members of the Senate Armed Services Committee and by congressional defense critics such as Representative Les Aspin. The Members of Congress for Peace through Law, a congressional group chaired by Senator Dick Clark of Iowa is even more optimistic; it maintains that the U.S. Navy has a large lead over the Soviet Navy. Serious critics of these views, such as former Secretary of Defense James R. Schlesinger and former CNO Adm. Elmo Zumwalt, maintain that the Navy is in a serious state of decline and cannot fulfill its missions properly with available combatants.

¹⁵ Adm. Elmo R. Zumwalt, Jr., *High-low*, U.S. Naval Institute Proceedings, vol. No. 102, April 1976. Reprinted in *Current News*, May 11, 1976, p. 2.

¹⁶ *Ibid.*, p. 2.

In a recent speech before a meeting of the National Aviation Club in Washington, Secretary Middendorf listed several major assets of the U.S. Navy, such as superior aircraft carriers, quieter submarines, and more highly qualified personnel. Hence, he added; "... there is little validity to the recent charge that we are falling farther and farther behind the Soviet Union in seapower."¹⁷ In recent testimony before the Task Force on Defense, of the Senate Budget Committee, Admiral Holloway said that it is not the Navy's intent or objective to control simultaneously all seven-tenths of the Earth's surface which is covered by international waters, but instead to be capable of fighting and winning any actions required to insure that we are able to use those parts of the high seas required to support our national policy. Within those parameters, the admiral maintained:

I might say that our analyses indicate that we can carry out our missions and tasks against the current threat as we analyze it, *but only by a very slim margin of success*. There are some areas of the world in which we can't cope with the threat, but in the most important area, which is the Atlantic in the context of a NATO-Warsaw Pact conflict where the resupply of NATO through the Atlantic is absolutely essential to the fulfillment of our goals in that theater, the U.S. Navy can, we believe, maintain the integrity or gain the integrity of our supply lines across the Atlantic.¹⁸

Department of Defense authorities are particularly worried about past and current Soviet shipbuilding trends, which, they maintain, will result in Soviet overall superiority at sea, if not arrested soon.¹⁹ Representative Les Aspin disagrees with the Pentagon. He maintains that both the United States and the Soviet fleets have contracted in recent years, and that if current shipbuilding trends continue, the United States will grow again and outproduce the Soviet Navy in both surface warships and nuclear attack submarines.²⁰

Naval authorities generally agree with Representative Aspin's historical analysis of total shipbuilding programs in both the United States and the U.S.S.R., but they disagree strongly with the Aspin analysis of future shipbuilding trends in the two countries.

The Members of Congress for Peace through Law recently issued a report on national defense stating the U.S. Navy is the strongest in the world.²¹ Recognizing growing Soviet capabilities in the oceans, the report maintains:

Despite its growing capability, the Soviet fleet ranks a distant second when compared to the U.S. fleet. When the NATO navies and the Japanese navies are added to the naval power equation, the U.S. and allied navies clearly have an overwhelming naval superiority over Soviet, Chinese and/or Warsaw Pact navies. This is likely to continue in the foreseeable future.²²

But the same report also recognizes that the Soviet Union may deny sea control—its key role—to the U.S. Navy, arguing:

¹⁷ Remarks by Navy Secretary J. William Middendorf before a meeting of the National Aviation Club in Washington, "Aviation Week & Space Technology," Mar. 8, 1976.

¹⁸ U.S. Congress. Senate. Committee on the Budget, Task Force on Defense, Seminars, Service Chiefs on Defense Mission and Priorities, Sept. 18, 1975, Washington, D.C., U.S. Government Printing Office, 1976. p. 9.

¹⁹ See: Quotations of Defense Secretary Donald Rumsfeld and Chief of Staff, General George S. Brown in: Representative Les Aspin, *The Trends in the Naval Balance: A Fact Sheet*, Washington, D.C., July 1976.

²⁰ *Ibid.*, pp. 3 and 17.

²¹ Congressional Record, May 19, 1976, S7509.

²² *Ibid.*, S7509.

Only in the area of sea denial does the Soviet Union Navy pose a serious challenge to the U.S. Navy. The Soviet Navy does maintain a quantitative superior attack submarine force to that of the United States, outnumbering the United States 253 to 73. . . . These Soviet submarines pose a threat to convoys and surface combatants of the U.S. and NATO countries and represent the biggest challenge facing the U.S. Navy, especially in the attempt to reinforce NATO or any overseas ally in a general war abroad where the two superpowers were engaged.²³

It is difficult to see how it matters that "no Navy in the world can match the U.S. ability to project power onto friendly shores"²⁴ if at the same time the U.S. Navy cannot exercise sea control, as the quoted statement implies. The United States must control sea lines of communication in order to conduct extended military operations overseas.

It is this combination of the vast Soviet attack submarine force, the numbers and capabilities of minor combatants for coastal defense, and the growing numbers and capability of Soviet major combatants that worries the critics.

Former Chief of Naval Operations Adm. Elmo Zumwalt declared that:

In 1970 when I first became Chief of Naval Operations, it was my judgement that we had just slightly better than an even chance . . . of winning a sea control war at that time with the Soviets. . . . In the years since 1970 our chances for success have diminished.²⁵

Once, referring to an area of vital interest to U.S. national security, the eastern Mediterranean, Zumwalt said:

The Soviet Union has progressed so far that if the U.S. Navy deployed during the Yom Kippur war of 1973 had battled the Soviet Navy in the Mediterranean the odds are very high that they would have won and we should have lost.²⁶

Former Secretary of Defense, James R. Schlesinger, has never said that the U.S. Navy can no longer carry out its current missions and tasks. Yet, he has expressed his worries about the size of the U.S. fleet, which sharply diminished in recent years, and at what he calls "a distressing decline of the material readiness of the fleet."²⁷ About the decline of the Navy, Secretary Schlesinger wrote:

. . . The strength of the Navy is perhaps the most dramatic case in point. In the face of a major expansion of Soviet naval forces, which has altered the character of the naval balance, the size of the U.S. fleet has diminished sharply. In the fiscal year 1968 the Navy had 976 ships. This fiscal year it will be down to 483 ships. The shrinkage reflects the disappearance from the fleet of vessels constructed during the World War II period, some 30 years ago. It also reflects the postponement of naval construction during the Vietnam war, and the present lack of shipyard capacity. Naval commitments in the Far East and the

²³ Ibid., p. S7511.

²⁴ Ibid., p. S7510. In fact, the study admits that while the main mission of the U.S. Navy in a war with the Soviet Union will be to keep the NATO sea lanes open for reinforcements by ship and to prevent the projection of power by Soviet ships against U.S. coasts, "the large Soviet attack submarine and ballistic missile submarine forces as well as the formidable Soviet antiship cruise missile capability, make the success of this kind of U.S. mission highly doubtful."

²⁵ Quoted from: Maj. Gen. Robert N. Ginsburgh (USAF ret.), "A New Look at Control of the Seas", Strategic Review, winter 1976.

²⁶ Congressional Record, July 28, 1975, p. S14016.

²⁷ Schlesinger, James R., A testing time for America. *Fortune*, v. 93, no. 2, Feb. 1976: 148.

Mediterranean have not shrunk commensurately. As a result, the smaller fleet of today is overworked in the attempt to maintain those commitments. The consequence has been a distressing decline of the material readiness of the fleet . . .²⁸

A striking example of what he meant by the distressing decline of the fleet readiness was his recollection of the *Mayaguez* incident. Dr. Schlesinger wrote:

The decay in the condition of the fleet was dramatically underscored during the response to the *Mayaguez* incident. The 31-year old carrier, *Hancock*, which had been operating without one of its four shafts, limped belatedly from Subic Bay toward the Gulf of Thailand at 23 knots; it also never arrived at the scene. The helicopter carrier *Okinawa*, with part of its boiler plant off the line, crept along at 13 knots; it also never arrived at the scene. The escort vessel *Holt*, the first ship at the scene, had power-supply problems, and consequently its main battery was down the night before the engagement. Clearly, this Nation cannot for long tolerate the present readiness condition of the U.S. Navy, if we are to continue to rely on it for rapid response.²⁹

Norman Polmar, the Washington editor of *Jane's Fighting Ships* agrees with Dr. Schlesinger's view about the state of readiness of the aged U.S. fleet. He concluded that the U.S. Navy is declining in several categories at a time when the Soviet Navy is increasing.³⁰ Mr. Polmar states that there are indeed areas where the U.S. Navy does have modern ships, ". . . but in an overall comparison of active fleets, the Soviet Navy now is larger on the surface and underwater, and significantly more modern in certain categories."³¹

While U.S. naval missions have remained basically unchanged in the past 30 years, in spite of considerable reduction of the fleet, Soviet missions may have expanded with the growing size and capabilities of their fleet. Initially, Soviet naval strategy was aimed at defending the large Russian coastline. A large fleet of submarines, small coastal surface combatants, and a naval air force were designed for this purpose. The result of the ambitious naval ship construction program of the 1960's has been a gradual development of a forward strategy aimed at denying the United States control of vital parts of the world oceans, in the Norwegian Sea, the Baltic Sea, the Sea of Japan, and possibly in the eastern Mediterranean and the Red Sea.

Last year's "Okean 1975" naval exercises demonstrated that the present combination of missile-armed bombers, nuclear and conventional submarines, and guided-missile surface combatants give the Soviet Navy both a good longstanding defensive and a new forward strategy, which appears to become increasingly offensive in nature. Strategically, the Soviet Union has the initiative. It can control the seas adjacent to Soviet territory and, given the easier nature of the sea-denial mission, it may also be in a position to prevent U.S. sea operations in areas of vital importance to U.S. national security.

²⁸ Ibid., p. 148.

²⁹ Ibid., p. 148. The state of readiness is of great importance. The side which controls more ships in good state of combat-readiness and deployment, is likely to be the first on the scene in case of a crisis somewhere. Will the other party risk a confrontation?

³⁰ Norman Polmar, *Soviet Naval Challenge for the 1970's*, New York: Crane Russak & Company, Inc., 1974, p. 105.

³¹ Ibid., p. 104.

The Soviet Union, while currently capable of deploying an effective sea-denial force in the north Atlantic, the eastern Mediterranean, and its own coastal waters, has also begun to build a balanced blue-water navy of its own. Its recent shipbuilding program (1969-76) reflects this effort.

For almost two decades the Soviet Union concentrated on building small ships, with an average tonnage of 3,520 dead weight tons (as opposed to 8,776 for the United States). In recent years (1969-76), however, the Soviet Union has emphasized the construction of larger ships, with an average tonnage of 6,228 dead weight tons (as opposed to 9,526 for the United States).³² In "Seapower and the State," Soviet Admiral Gorshkov maintained that the multifaceted activity of the Navy in war and in peace and the broad range of missions accomplished by it (each of which demands the participation of various forces and equipment) have generated the need to balance naval forces with respect to various criteria and characteristics.³³

In addition to its sea-denial mission, such a balanced navy will provide the means for a more aggressive foreign policy, particularly in contested areas of the developing world where the Soviet Union is ideologically committed to a policy of support for revolutionary movements. In Gorshkov's words:

. . . In the policy of our Party and state, the Soviet Navy is emerging as a factor for stabilizing the situation in various areas of the world, fostering the strengthening of peace and friendship between peoples and acting as a deterrent to the aggressive aspirations of the imperialist states.³⁴

A balanced fleet will enable the Soviet Union to project its own power overseas. It will provide the U.S.S.R. with the option (in the event limited military conflicts are brewing) "to employ and extend a military threat to any level, beginning with a demonstration of military might and ending with the landing of a landing party."³⁵ On the other hand, with the growth in size of the Soviet blue-water surface fleet, their surface combatants will become increasingly vulnerable to U.S. submarines and surface ships, particularly in the open ocean where the Soviets have no air cover. The Soviet Navy can partially offset this disadvantage and the disadvantages of its own geography by acquiring more naval air-bases overseas.

It is difficult to project Soviet intentions with any degree of certainty. Its early postwar emphasis on the construction of small surface combatants and limited range submarines was primarily defensive in nature. The Soviet naval buildup in the 1950's was initially developed in response to a threat which it perceived from traditional western naval powers; specifically it is a response to Western, primarily United States, aircraft carriers and submarines carrying nuclear warheads.

The growing emphasis on larger, blue-water surface ships, including aircraft carriers, coupled with increasing use of overseas bases and

³² Alva Bowen, Jr., Comparison of U.S. and U.S.S.R. Naval Shipbuilding, Congressional Research Service, Washington, D.C., Mar. 5, 1976, p. 5.

³³ Department of Defense, Excerpts from Admiral of the Soviet Fleet Sergei Gorshkov, *Seapower and the State*, (unpublished document), Washington, D.C., 1976.

³⁴ Ibid.

³⁵ Ibid.

improved techniques for deploying ships at sea, may very well indicate a shift to an inherently aggressive Soviet military posture. The growing capabilities of the Soviet Union in some areas, like the Mediterranean, has limited United States options in that part of the world in case of conflict. Will the Soviet blue-water navy increasingly be deployed in Angola-type situations, thus limiting United States options in areas where the United States has a legitimate interest? In view of the limited overseas trade of the Soviet Union and the nonexistence of overseas allies vital for the defense of its own homeland, what other reason could there be for the development of a major blue-water navy?

Part of the answer may also be found in Admiral Gorshkov's belief that in an era of growing populations and increasing competition for food, minerals, and fuels, the distribution of the ocean's resources may become a major source of potential conflict. While the Soviet Union does not now depend heavily on minerals from the oceans, it may become so in the future. As far as limited marine fisheries resources are concerned, the Soviet Union is heavily dependent on its vast marine harvest for animal proteins. The Soviet Union today harvests approximately 15 percent of the commercially important marine fisheries species harvested by the entire world. It may be concerned about how to maintain such harvest in a world of nation-states that appear destined to assert control of all fish resources within 200-nautical miles of their coasts.

The Pros and Cons

Defense analysts have quite different views on the ability of the U.S. Navy to perform its current and projected future missions. Those who say that it can now, and in the foreseeable future carry out its missions, argue in general that in spite of the impressive Soviet attack submarine and anti-ship cruise missile capability, the United States would still win any head-to-head open sea encounter. (Few experts would deny that the Soviet surface fleet, which has only one small aircraft carrier and fewer major combatants than the U.S. surface fleet, is vulnerable to U.S. open sea air attacks where they have no air cover.) They also say that the large numbers of Soviet surface ships that some Western studies call "major combatants" are mostly less than 3,000 tons in size and no match for larger U.S. combatants. They also maintain that NATO allies would help in any major confrontation with the Soviet Union, adding close to 400 major combatants to U.S. forces.

Together with the U.S. Navy, the NATO Navy clearly gives the edges in naval supremacy to the United States and its allies over any combination of navies that the Soviets and their allies can put to sea.³⁶

They also argue that the United States has several large naval bases around the world and hundreds of open ports where its ships drop anchor; a marine corps far superior in strength and experience to the Soviet counterpart; and experienced and battle-tested sailors and pilots.³⁷

They frequently cite Soviet institutional economic weaknesses, projections of lower GNP growth rates in the coming 5-year plan, and internal competitions for scarce Soviet resources. They also stress recent naval construction trends favoring larger, more expensive, and more sophisticated ships, possibly making economic difficulties worse. Those who hold this point of view say that the Soviet Navy is not likely to expand, and that it may in fact shrink as older combatants need to be replaced with larger, more sophisticated, and costlier ships.

Those who feel that the U.S. Navy has already lost, or that it is in the process of losing its ability to control the seas and project power overseas against Soviet opposition agree that the U.S. Navy today would win a classic fleet versus fleet confrontation with the Soviet Navy in the open sea. The Soviet Navy is not designed for such confrontations. Instead, these critics worry about the following developments:

The U.S. Navy has emphasized force projection at the expense of sea control.

Emphasis on very expensive carrier task forces has prevented development of a balanced Navy of both high performance and low-cost single purpose vessels.

Technological trends still favor submarine over ASW forces; improved satellite reconnaissance makes hiding at sea more difficult and surface ships more vulnerable.

The aircraft carrier, which consumes 50 percent of the Navy budget and is very limited in number is increasingly vulnerable to surprise submarine and air and surface missile attack, particularly in areas like the eastern Mediterranean.

The large Soviet submarine force can play havoc with U.S. efforts to project power ashore and maintain communication lines.

Soviet "minor combatants" have been undervalued. While their range is limited, technological trends put more and more destructive power at the disposal of smaller and smaller units.

Recently acquired Soviet base rights in Africa improve their blue-water capability and increases the vulnerability of vital oil supply lines from the Middle East to western industrial nations.

³⁶ Task Force on Defense Policy of the Members of Congress for Peace through Law, Congressional Record, May 19, 1976, p. S7511.

³⁷ Ibid.

Vulnerability of the U.S. Fleet

Immediately following the Second World War, no nation disputed U.S. control of the seas. Aircraft carriers were the best means to project power ashore.

But the Soviet Union decided to plan a naval strategy and to build a Navy that could deny sea control to the United States and prevent the projection of U.S. naval power to Soviet shores. This plan did not include carriers until recently. Instead, it called initially for large numbers of small guided-missile ships, attack submarines, and land-based missile-equipped naval aircraft. They were designed to work together in countering American seapower.

Gradually, as the initial systems grew, the Soviets started adding the means necessary to achieve a more distant and forward-oriented strategy.

For example, the "*Okean 75*" exercise involved more than 200 Soviet nuclear submarines and surface vessels and 400 aircraft operating in three oceans in well coordinated maneuvers, which required a sophisticated worldwide communication network, including satellites. Soviet aircraft operated from bases in the Soviet Union, Cuba, Guinea, and Berbera in the Somali Republic. Soviet squadrons exercised from the Sea of Japan to the Caribbean and from Norway's North Cape to the Azores. A task force headed by two missile-armed cruisers conducted what seemed to be anticarrier exercises in the Tyrrhenian Sea area of the Mediterranean. Four naval task groups operated in the Western Pacific, and heavy concentrations of submarines and surface ships operated in the North Atlantic. Naval aircraft flew over the North Atlantic, the North Pacific, and the northeastern part of the Indian Ocean (tanker route). "*Okean 75*" was an impressive show of Soviet naval strength beyond traditional coastal waters. It prompted Secretary of the Navy Middendorf to say:

It is apparent that the numbers of new ships and weapon systems which the Soviet Navy is acquiring and the experience it is gaining from its continuing high level of operations in distant areas are giving the Soviet Navy the level of capability, professionalism, and importantly, self-confidence to explore new naval strategies which could be applied against the United States in various stages of hostilities ranging from an economic blockade to an all-out nuclear war. *Okean 75* saw Soviet naval units operating in more or less traditional areas such as the Norwegian Sea but also in areas such as the sea approaches to Europe, in the approaches to the Persian Gulf, off the west coast of Africa and off the coasts of Japan. In most of the exercise activity, the Soviets displayed a remarkably sophisticated and well-integrated capability for surveillance of the surface of the oceans, making extensive use of sophisticated systems. Having located ships on the high seas with this system, Soviet surface, air, and submarine forces exercised in convoy and anticonvoy operations, reconnaissance of vital sea lines of communication, and the control of key chokepoints throughout the world. These new departures were in addition to the normal exercising of Soviet Navy anticarrier and antisubmarine missions, as well as simulated strategic strike at the culmination of the exercise.³⁸

Okean 75 has shown that a Soviet Navy equipped with antiship missiles with high-yield warheads, in combination with land-based coastal aircraft and submarines, makes it impossible to be reasonably sure any longer that U.S. aircraft carriers can carry out the power projection missions for which they were primarily designed.

³⁸ Remarks by Navy Secretary J. William Middendorf before a meeting of the National Aviation Club in Washington, Aviation Week & Space Technology, Mar. 8, 1976.

The postwar period of unopposed U.S. sea control would naturally affect the development of U.S. Navy doctrine and hardware, leading to a fleet ideally suited to intervention from privileged sanctuaries at sea.³⁹ This emphasis on carriers has subordinated other surface combatants to defense of the carriers. According to Vice Admiral Steele: "This has shriveled the Navy's fighting ability on the surface until it is now incapable of standing up to Soviet cruisers armed with potent long-range cruise missiles."⁴⁰

Several other knowledgeable observers also believe that carriers are very vulnerable, particularly in coastal areas where a potential enemy can launch a surprise attack, firing off missiles from coordinated air, surface, and subsurface platforms. The Eastern Mediterranean is said to be one of the areas where Soviet air and naval power effectively counterbalance U.S. naval forces.⁴¹

While anti-ship missiles may not sink a carrier, missile hits with high-explosive warheads at the right places (i.e. a hangar or flight deck loaded with planes, fuel and ordnance) could hamper or stop the launch or landing of aircraft for critical periods of time. Soviet ship-to-ship missiles with nuclear warheads can, of course, sink a carrier.

William S. Lind, legislative aide for military affairs to Senator Robert Taft of Ohio, suggested in a recent article that even missile-equipped minor-nation forces pose increasing threats to aircraft carriers stationed off the coasts of unfriendly minor powers as a "presence" force. Lind argues that, in view of the diplomatic and domestic consequences of a preemptive strike, a scenario can be envisioned in which the minor power attacks first with missile-firing patrol boats and possibly cripples the carrier.⁴²

Aircraft carriers may be vulnerable to Soviet submarine attacks even outside coastal waters. Vice Admiral Steele, himself a submarine commander before commanding the U.S. 7th Fleet, said about the submarine threat: "In spite of almost frantic efforts and brave talk by the Navy over many years, the submarine threat to U.S. surface forces is grave."⁴³ Under fair weather conditions, airborne ASW systems may be effective, according to Steele, "... but reliable, all-direction, continuous air protection for surface forces, including aircraft carriers, is still not possible."⁴⁴

Even under bad weather conditions, submarines can operate at normal speed and launch torpedoes. They are hardly detectable. Carriers, on the other hand, cannot function as efficiently under adverse weather conditions. Vice Admiral Steele maintains that two or more nuclear-powered attacking submarines can saturate the defenses of an aircraft carrier group.⁴⁵

³⁹ Vice Adm. George P. Steele (ret.), "A Fleet To Match Our Real Needs," *Washington Post*, Mar. 16, 1976.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

⁴² Williams S. Lind, "Old Thinking Will Not Keep Sea Lanes Open", *Washington Star*, Aug. 3, 1975.

⁴³ Steele, *op. cit.*

⁴⁴ *Ibid.*

⁴⁵ The CNO maintains that two submarines cannot saturate carrier defenses.

It is not difficult for several submarines to act in concert.⁴⁶ The latest Soviet nuclear submarines emit a lower noise level, and they are equipped with more sensitive sensors, which means they can detect surface vessels at greater distances than could earlier models. With respect to antisubmarine destroyers, propellers make more noise as speed increases while the effectiveness of sonar detection equipment diminishes noise and speed increase.⁴⁷ Helicopters, and some other ASW equipment, are able to avoid this noise-speed problem, but they have other difficulties in detecting the presence of submarines. Current trends in submarine technology and construction, according to Rear Admiral Wegener (Bundesmarine, ret.), clearly favor the submarine over antisubmarine warfare measures.⁴⁸

This discussion does not necessarily mean that all aircraft carriers have outlived their usefulness. Zumwalt, Steele, and numerous other critics believe that carriers continue to serve a unique purpose. Some analysts believe that carriers should be kept beyond the range of cruise missiles until enemy defenses have been reduced or eliminated since they can still destroy enemy vessels or shore installations, search out and destroy enemy submarines over long distances and at high speeds, provide air support for land battles, interdict land or sea-based enemy aircraft, and launch cruise missile attacks against ships and ports.⁴⁹

The question of the vulnerability of aircraft carriers is a very controversial one at the moment. The issue may turn on who attacks first. Soviet submarines or surface ships or both often "attach" themselves to American carriers and follow them constantly. Such submarines and surface ships would be politically, and sometimes physically, difficult to destroy during peacetime; if war commences they could launch a heavy and crippling surprise salvo, at point blank range, against the American carriers. If the first attack creates enough damage to prevent the launching of aircraft, the carrier is vulnerable to later attacks aimed at hampering or preventing repairs or at destroying the ship.⁵⁰ Once the carriers are eliminated, enemy attack submarines could conduct raider warfare against allied merchant ships with virtual impunity. Without carriers, the U.S. Navy would lose its air superiority, and Soviet missile cruisers and missile destroyers would be better able to eliminate American cruisers and destroyers.⁵¹

The U.S. Navy need not be overly pessimistic about the vulnerability of carriers. Very few carriers were destroyed in World War II, and since then there have been significant improvements in the damage-control systems of carriers. It is said that these improvements make it nearly impossible to destroy a carrier with conventional weapons. Critics agree that if the carriers can escape severe initial damage, the chance of their being successfully attacked by fast nuclear sub-

⁴⁶ Steele, *op. cit.*

⁴⁷ Rear Adm. Edward Wegener (ret.), *The Soviet Naval Offensive*, Bonn, Germany, 1974, p. 14.

⁴⁸ *Ibid.*, p. 16.

⁴⁹ Adm. Elmo R. Zumwalt, Jr., "High-Low," *op cit.*, p. 6.

⁵⁰ Congressional Record, May 19, 1976, p. S7512.

⁵¹ Wegener, *op cit.*, p. 105.

marines and missiles launched from bombers or surface combatants is substantially diminished.

The fact that the Soviet Union has begun its own carrier construction program (with smaller ships equipped with helicopters, cruise missiles, ASW ordnance, and V/STOL aircraft) suggests that carriers have some important mission to perform in the Soviet strategic design, which seems to differ substantially from ours.

These points do not silence the critics of carrier construction. They argue that the expenditure of 50 percent of the Navy's budget on such vessels is not justifiable unless the carriers are reasonably sure of being able to carry out their power projection mission. They say that carriers can no longer project power in key areas of importance to NATO.⁵² They also say that the Chief of Naval Operations own testimony assigns first priority for the Navy to sea control,⁵³ whereas carriers are primarily power-projection ships as to which sea control is only a collateral function. If carriers cannot assure power projection, and if they are of secondary importance for sea control, today's Navy may, according to its critics, provide for little in the way of national security. The report of the Task Force on Defense Policy of the Members of Congress for Peace through Law conclude: "We may indeed have the worst of both possible worlds—a naval force which is unable to adequately perform either sea control or power projection."⁵⁴

The issue of carrier vulnerability is likely to remain controversial until it is resolved by the evidence of actual combat.

THE U.S. FLEET OF THE FUTURE

In recent years, the Congress has begun to reassert its responsibility to participate more fully in foreign and defense policy. Previously, the Department of Defense stated its weapon requirements, and the Congress rarely questioned anything other than the size of the overall Pentagon budget and some details as to various weapons systems.

The Congress is no longer satisfied with such a passive role. It is beginning to question fundamental assumptions about U.S. foreign policy and defense. For example, is there really no alternative to an ever growing defense budget, in real terms, without risking U.S. national security? There are no ready answers to this and other questions, but the growing congressional interest in defining and debating the underlying concepts of foreign and defense policy will have a major impact on the size and composition of the U.S. Fleet of the future.

One has to examine a number of variables in determining the future needs of the U.S. Navy, such as: Soviet foreign policy and U.S. percep-

⁵² Congressional Record, May 19, 1976, p. S7512. See Also: Capt. Robert B. Bathurst, "The Lemming Complex: Ritual Death in the Norwegian Sea," Naval War College Review, May-June 1974

⁵³ DOD Directive 5100.1, issued on Dec. 31, 1958, reads that the primary mission of the Navy is: To organize, train, and equip Navy and Marine Corps forces for the conduct of prompt and sustained combat operations at sea, including operations of sea-based aircraft and land-based naval air components—specifically, forces to seek out and destroy enemy naval forces and to suppress enemy commerce, to gain and maintain general naval supremacy, to control vital sea areas and to protect vital sea lanes of communication, to establish and maintain local superiority (including air) in an area of naval operations, and to conduct such land and air operations as may be essential to the prosecution of a naval campaign.

Quoted from: Congressional Record, May 19, 1976, p. S7512.

⁵⁴ Ibid., p. S7512. Analysing the annual NATO Norwegian sea exercises, Capt. Robert B. Bathurst, professor at the Naval War College, came to a similar conclusion. See: Bathurst, op cit., p. 38.

tion of the Soviet strategic naval concept and challenge; U.S. foreign policy and the development of ocean-related interests; and technological trends.

SOVIET FOREIGN POLICY AND NAVAL STRATEGY

The Soviet Union is likely to continue its policy of detente with the West as long as (1) it serves Soviet political and economic interests and (2) the current nuclear stalemate provides a credible deterrent to potential Soviet aggression in areas of considerable importance to the Western alliances. Former Secretary of the Navy Paul H. Nitze contends that under the terms of the SALT agreements, there is every prospect that the Soviet Union will continue to pursue the objective of a nuclear superiority that is not merely quantitative but which is designed to produce a theoretical war-winning capability. Nitze concludes that if such a condition were achieved, "the Soviet Union would adjust its policies and actions in ways that would undermine the present détente situation, with results that could only resurrect the danger of nuclear confrontation or, alternatively, increase the prospect of Soviet expansion through other means of pressure."⁵⁵

It is difficult to project when and where heavy pressure would be brought to bear by the Soviet Union. Détente with the West has served the Soviet Union well. It has resulted in de facto recognition of Soviet dominance in Eastern Europe at the 1975 Helsinki Conference, and it has influenced some NATO members to reduce their defense expenditures at a time when the Soviet military budget is increasing. Détente has also created a favorable climate for access to much needed Western capital and advanced technology.

There seems to be little doubt that the Soviet leadership still believes that the eventual worldwide triumph of socialism is inevitable and that they are obligated to assist in the process.⁵⁶ The Soviet Union may not openly confront the NATO alliance in Europe, but instead it may first challenge the West in contested areas in the developing countries. If the West does not stand firm against Soviet adventurism, Soviet foreign policy is likely to become increasingly aggressive. The Kremlin leadership has on several occasions indicated that détente does not mean abandonment of its policy of support for national liberation movements. The Soviet Union realized as early as 1962, during the Cuban missile crisis, that it needed a blue water capability to support its overseas allies. Its awareness of the growing dependence of the Western World on fuels and raw materials from the developing nations of Asia, Africa, and Latin America could easily lead it to conclude that mastery of the seas is essential to Soviet world hegemony. Whether or not the Soviet Union succeeds in exporting revolution to strategically important areas of the third world, many strategists believe that the desire to influence events in the third world is a major motivating force behind the current Soviet effort to build a major blue-water surface fleet. Only with the help of seapower can the continental limits be surmounted; only with seapower can Soviet influence—and possibly hegemony—be extended throughout the world.⁵⁷

⁵⁵ Paul H. Nitze, "Assuring Strategic Stability in an Era of Détente", *Foreign Affairs*, vol. 54, No. 2, January 1976, p. 207.

⁵⁶ *Ibid.*, p. 208-210.

⁵⁷ Wegener, *op. cit.*, p. 117.

The Soviet Navy is not yet equipped for this task, on a worldwide scale. However, growing Soviet seapower has already succeeded in eliminating broad zones from western naval mastery, which once extended up to the coast of the Soviet Union itself. As Soviet naval forces in the North Atlantic and eastern Mediterranean grow larger, threatened countries are more likely to conclude that NATO can no longer defend them. Such a conclusion might lead to withdrawals from the alliance, to neutralization, and finally to "Finlandization" of Europe.⁵⁸ With the reopening of the Suez Canal, the Soviet Union has easy access to the Red Sea and the Indian Ocean in peacetime, and it has developed a network of maritime positions in the northern part of the Indian Ocean and its peripheral seas, such as the Red Sea. The West once maintained a series of bases all around this area, which is of such vital importance to western oil supplies. The West has lost all its maritime positions in the northern part of this area.⁵⁹ A Soviet naval presence in the northern Indian Ocean does not, however, mean that the Soviet Union has sea control in this area since NATO still controls Soviet naval access to the eastern Mediterranean approaches. It is the eastern Mediterranean which is of decisive importance in the East-West confrontation. Naval strategic developments in the Indian Ocean and, as a consequence, political events in East Africa and in the Middle East, with its oil and population resources, hinge upon the future of this sea area.⁶⁰ Western control of the eastern Mediterranean and Indian Ocean is necessary to protect vital security interests of Western nations and to allow cooperation with Middle East nations. It is questionable if it can be done with current force levels and without weakening the North Atlantic and North Pacific fleets.

In a recently published book, "Seapower and the State," S. G. Gorshkov, Admiral of the Fleet of the Soviet Union, argues for sea control as a mission of the Soviet Navy. He calls for a balanced navy to carry out the multifaceted activity of his navy in war and in peace.⁶¹

The recent Soviet trend toward the construction of larger, multipurpose, major combatants (including a V/STOL aircraft carrier) may indicate a Soviet ambition to achieve ultimate control of the seas. This phenomenon is interesting, because in the past Soviet strategy has, in general, been to avoid confronting the West and its naval forces with means of the same order. Soviet V/STOL aircraft carriers and other major combatants may become tempting targets for U.S. nuclear submarines and air power at sea, especially in the Pacific and North Atlantic Oceans. Perhaps the Soviet Navy intends to display aircraft carriers in the Indian Ocean, where the Western Powers are weakest and where the Soviet Navy is gradually acquiring naval strategic positions and base rights. Soviet carrier task forces could lead to Soviet mastery of the northern part of the Indian Ocean and enable the Soviet Navy to interfere with western oil shipments from the Middle East in case of war. In view of the declining number

⁵⁸ Ibid., p. 119.

⁵⁹ Ibid., p. 90.

⁶⁰ Ibid.

⁶¹ Department of Defense, Translated material on "Seapower and the State" recently published by Admiral of the Fleet of the Soviet Union, Gorshkov, Washington, D.C., spring, 1976.

of American aircraft carriers, the U.S. Navy would have to either divert carriers from other areas to the Indian Ocean or leave the Soviet Union unchallenged.

Technological trends

Modern technology is placing more and more destructive power at the disposal of smaller and smaller units—on land, at sea, and in the air. This trend has accelerated dramatically over the last decade. It has brought highly accurate mid course and terminal guidance for missiles and projectiles; increasing speeds as well as accuracies in reaching targets whether close or very far away; and equivalent advances in surveillance and other sensing means. Progress in such areas, by both sides, seems likely to continue or even to accelerate further. The implications of this trend for military operations, tactics, doctrines, and equipment may be revolutionary, at sea as well as elsewhere. It may also have a major impact on national strategies.

For example, small ships and submarines are far more deadly than they were only 10 years ago. Hiding and surprise are now, and will continue to be, more and more important. Large surface ships will be harder to hide from modern and future sensors, more vulnerable to attack from more sources, and more difficult and more costly to protect. Numbers are more important than before, and complex, vulnerable, and costly weapons systems may be less effective as well as less numerous in the future.

Advances flowing from the space program are altering the use of submarines. Satellite surveillance and modern communications can advise submarines as to the location of surface ships. Surface vessels, on the other hand, have no equivalently effective way to find or track submarines. Such modern technical trends favor the submarine over the surface ship.

As noted earlier, the Soviets are well ahead of the United States in the number of submarines, surface ships, and anti-ship missiles. The United States is ahead only in the number of large aircraft carriers, an area in which the Soviet Union is not competing.

Critics maintain that major combatant may be a category of rapidly diminishing importance, particularly if the newer technologies mean more effective defenses against manned aircraft—as seems to be the Naval spokesmen, on the other hand, argue that the most effective new technologies to combat manned aircraft also require large platforms. Those that fit on smaller platforms are said to be less effective, although they are an improvement over those available 10 years ago.

In the latest "Research Posture Statement," an annual Pentagon publication, Dr. Malcolm R. Currie, Director of Defense Research and Engineering, states that although the United States continues to hold a technological lead over the Soviet Union in most areas critical to our national security, the Pentagon fears that the rapidly expanding Soviet military research program could result in overall Soviet dominance in military technology by the mid-1980's.⁶² The Soviet research effort is said to be in transition, away from the conventional incrementalism of the past toward innovation and bold new undertakings in speculative but high payoff areas. Having gained nuclear parity, the Soviet Union, according to Dr. Currie, is investing increasing resources in a search for revolutionary technologies which

⁶² New York Times, Feb. 15, 1976.

could seriously alter the strategic balance. He asserts that the Soviet Union is challenging American technological leadership across almost the entire spectrum of conventional warfare.⁶³ In the oceans area, Dr. Currie refers to two new classes of satellites which can be used for global ocean surveillance and to obtain target information for use by Soviet missile ships and attack submarines. One of these satellite systems uses active radar. The United States, according to Dr. Currie, does not have a similar system.⁶⁴

Military technology is one area in which the United States should dominate. It is difficult for the United States to match Soviet manpower. Constraints on the use of resources in peacetime are frequently more of a problem in democracies than in totalitarian states. But, in the area of advanced defense technology, the United States has been the leader for a quarter of a century. American national security depends on this lead being maintained.

A NEW NAVY TO MEET NEW CHALLENGES

Critics maintain that the U.S. Navy was slow to appreciate the threat of and to develop means to handle, the Soviet submarine buildup in the 1960's, the development of ship-to-ship and air-to-surface missiles, the recent construction of a large Soviet surface fleet, and technological breakthroughs such as like high accuracy, satellite reconnaissance.⁶⁵

Admiral Zumwalt states that the Navy invested a disproportionate share of its budget during the past 20 years into forces for the projection of power—carriers, attack planes, amphibious vessels—while sea-control forces, antisubmarine planes and their carriers and ships suitable for patrol and escort duty, were allowed to obsolesce and finally to be retired, without replacement.⁶⁶ Little effort was made during the Vietnam war, in his view, to estimate and plan for the meeting of future sea requirements, such as new types of ships from which planes and helicopters could operate; new techniques for combating submarines; new vessels to escort convoys; and new kinds of surface-warfare weapons.⁶⁷ The only exception to this lack of creativity and innovation was, according to Admiral Zumwalt, the nuclear attack submarine which was built as a result of Adm. Hyman Rickover's special relationship with the Congress.

Capt. Robert B. Bathurst, professor of tactics at the Naval War College, argues that the U.S. Navy, in spite of the known Soviet capability in the Northeast Atlantic, continues in its annual naval exercises in the Norwegian Sea to project a position which has long since been negated by the existence of a powerful Soviet counterforce that looks to the future rather than to the past.⁶⁸ He maintains that the U.S. Navy has concentrated so much on improving weapons, tac-

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ Representative Les Aspin takes exception to this view, as far as ship construction is concerned. He maintains that the United States began its major construction program in the early 1970's and that as a result of this the United States will be building more ships than the Soviets by the early 1980's, while the Soviets will soon be faced with bloc obsolescence. Representative Aspin's paper does not analyze qualitative variables, such as who is building the best navy to meet its projected missions.

See: Aspin, op. cit.

⁶⁶ Zumwalt, "High-Low", op. cit., p. 2.

⁶⁷ Ibid., p. 2.

⁶⁸ Bathurst, op. cit., p. 35.

tics, and command and control procedures, that it has slighted its objectives: sea control and power projection ashore.⁶⁹

It became theoretically impossible to get anything ashore because the ports would be knocked out by missiles; then it became improbable that one could get slow-moving ships through waters infested with so many submarines; finally, with air-to-surface missiles at great standoff ranges and modern means of detection, it became unlikely that the aircraft carriers could survive in a hostile environment in the Norwegian Sea. Although this exercise might be valid with respect to another country and another war, it could not be valid with respect to Soviet Union.⁷⁰

Why does the Navy conduct maneuvers which are expensive exercises in futility? Why has the Navy failed to search for alternatives? Why, says Captain Bathurst, has naval thinking about the Soviet menace focused on the strategic level while ignoring Soviet technical developments on the tactical level?

Bathurst, Zumwalt, and other critics have some answers to these questions, and they also have asked new and penetrating questions in their search for such answers.

First, the successes of previous wars tend to be extolled long after their continued efficacy should be seriously questioned. How can today's Navy protect slow-moving convoys of gigantic tankers against modern weapons? Does the convoy system itself make sense in a possible conflict with the Soviet Union?⁷¹

Second, nations often prepare for the last, rather than the next, war. The Soviet Union, for example, has constructed large numbers of superior tanks because their armies were destroyed by Nazi tank divisions in the early years of the Second World War. They have done so notwithstanding the fact that modern antitank missiles (which demonstrated their lethal capability during the 1973 Yom Kippur war) may have vitiated the future operational viability of tanks and armored personnel vehicles.⁷² The current aircraft carrier debate in the United States may be the equivalent of the tank and combat vehicle debate in the Soviet Union. At the same time that critics of the U.S. Navy were seriously concerned about the vulnerability of the core of the conventional navy aircraft carriers, Phillip Karber, a Defense Department consultant, concluded that the new antitank technology threatens the Soviet army with a tactical revolution and the potential abandonment of the armored offensive.⁷³ The fact that new tanks are being designed in West Germany and the United States is, on the other hand, an indication that the Army leadership in these countries is not convinced that Karber is correct.

Third, military organizations frequently resist the introduction of any radical new weapons that would require basic changes in their force structures.⁷⁴ Both Zumwalt and Bathurst describe the Navy's initial opposition to the nuclear submarine; it might not have been constructed if it had not been for Admiral Rickover's influence with the Congress. The Navy is said to have a similarly unrealistic attachment to the carrier, comparable to its emotional attachment to the battleship in an earlier era.

⁶⁹ *Ibid.*, pp. 38, 39.

⁷⁰ *Ibid.*

⁷¹ *Ibid.*, p. 39.

⁷² See: New York Times, May 23, 1976.

⁷³ *Ibid.*

⁷⁴ Bathurst, *op. cit.*, p. 40.

Finally, there is intense competition for resources and recognition between the U.S. Navy's three "unions" (Zumwalt's form): the aviators, the submariners, and the surface sailors. Until 1970, when Zumwalt became Chief of Naval Operations, aviators dominated that high naval office.

The Soviet Union has responded successfully to the mighty American post-war challenge at sea by building a forceful sea-denial fleet. Today, they are on their way to developing a balanced fleet in the more traditional western sense. How should the United States, in its turn, respond to the mighty Soviet challenge represented by a growing force of supersonic naval aircraft capable of delivering air-to-surface missiles against our surface fleet over vast areas of the oceans, a continuing production of varied advanced design nuclear powered submarines, and a blue-water surface navy, including carriers, equipped with antiship missiles?

The only answer on which most experts will agree is that the United States must have a superior fleet of balanced forces capable of fighting successfully against this array of weapon systems and it must simultaneously be prepared for nonconventional challenges at sea by a minor power. Some of the options under consideration have already been discussed in this paper, but there are others also.

The U.S. Navy must, to a larger extent than it has in the past, keep abreast of technological trends. While the United States holds a leading position in industrial technology, the Soviet Navy appears to be more advanced in the deployment of precision-guided missiles and in the development of reconnaissance technology. Solutions to the Soviet naval challenge are, of course, complicated by uncertainty about U.S. foreign policy itself in the post-Vietnam war era.

The Navy is in a period of transition. In view of the long leadtime between a budget authorization and the completion of a new class of ships, the decisions that are being made today will affect the size and composition of the American fleet which will have to meet the challenges of the 1980's and 1990's. Each of the options described in this paper is likely to be costly, and the available funds will be limited. It is quite possible, as some observers maintain, that the Navy appropriations have been badly spent in recent years, and that a shift from bigger and more sophisticated ships to smaller and less expensive ships equipped with advanced guided missiles could result in both a more effective Navy and substantial savings. On the other hand, the All Volunteer Force opted for by the American people will continue to be very expensive, in light of inflationary trends and competition for available manpower. The Soviet Union spends about one-third of its defense budget on manpower, whereas the United States spends over 50 percent of its defense budget on manpower.⁷⁵ Thus, the Soviet Union can spend a larger percentage of its navy budget hardware than can the United States.

In view of almost unlimited legitimate demands on public funds, and after a quarter of a century of peace, the democratic countries of the West may be faced with the same danger as that which confronted the major maritime power of the early 17th century, the Republic of the United Netherlands. Johan de Witt, pensionary of the United Netherlands, once said about his people:

⁷⁵ *Congressional Record*, Apr. 5, 1976, p. S1905.

... Never in time of peace and for fear of a rupture will they take resolutions strong enough to lead them to pecuniary sacrifices beforehand. The character of the Dutch is such that, unless danger stares them in the face, they are indisposed to lay out money for their own defence. I have to do with a people who, liberal to profusion where they ought to economize, are often sparing to avarice where they ought to spend.⁷⁶

U.S. FOREIGN POLICY AND OCEAN RELATED INTERESTS

Decisions on naval construction programs taken today will affect the missions and tasks of the U.S. Navy of the late 1980's and 1990's. American foreign policy, after the Vietnam war, is in a state of flux. The Nation has for all purposes abandoned or is in the process of abandoning, its forward positions in Southeast Asia, and the future of its traditional alliances with South Korea and Taiwan is subject to debate. In the Mediterranean, the Navy is in danger of losing some or all of its bases. The prospect of Communist participation in the governments of one or more NATO nations would not only weaken the alliance but could lead to further losses of naval bases.

At the same time, the United States is becoming increasingly dependent on foreign trade. The Nation's traditional economic self-sufficiency has ended, in substantial part because of the large and growing dependence on imported oil. Oil imports, estimated at less than 6.5 million barrels per day in 1975, are likely to grow to 7.5 million barrels or more per day in 1976. That figure could very well reach 9 to 10 million barrels per day by the early 1980's. In order to pay for this increase in oil imports—the cost may exceed \$40 billion by 1980 in current dollars—more industrial and agricultural products must be exported. A growing volume of raw materials, critical for industrial wellbeing, must also be imported within the next decade. In fact, the United States may become as dependent on foreign trade as are the nations of Western Europe today. Without these imports, the economic strength of the United States would be severely damaged, well beyond what the Nation experienced during the Great Depression of the 1930's. Hence, a "fortress America" policy is not a realistic option.

At sea, new challenges are ahead and along with them new sources for conflict. Commercial fisheries are being threatened with overexploitation in many parts of the world. The extension of national jurisdiction to 200 nautical miles is not likely to end all conflict. New mining opportunities are likely in the deep seabed. A peaceful solution to the issue of the exploitation of deep seabed minerals may be achieved at the Third Law of the Sea Conference, but, if it's not, additional conflict is likely as to the ownership of the resources. Further into the future is the enormous potential for harvesting Antarctic krill; in volume (measured in annual maximum sustainable yield) it surpasses all other commercial fisheries together. Other mining activities, mariculture developments, construction of nuclear power plants on artificial islands, et cetera, offer great opportunities at sea, but they also contain the seeds of conflict.

⁷⁶ Quoted from: Alfred T. Mahan, *The Influence of Seapower upon History*, Boston, (Little, Brown, & Co., 1890), p. 49. A pensionary was somewhat equivalent to the position of a foreign minister today.

The Third Law of the Sea Conference may not solve a great many problems directly related to the division of ocean space—including the seabed—and to multiple uses of ocean space; another source of conflict.

The oceans and their resources are likely to become far more important to mankind in the future than they have been in the past. Despite the obvious need for international cooperation, the possibilities for conflict at sea may grow.

In view of these changes in ocean uses and in the international environment, what kind of a Navy does the United States need? Will the Navy of the future be designed to cope only with the potential Soviet threat? In view of the current stalemate between the superpowers, how are small nations to be protected, with respect to each other and foreign sponsors?

The stalemate between the superpowers has altered responses to challenges from minor powers. The United States controlled the seas and thus could have projected its power ashore during the *Pueblo* incident; instead it used diplomatic tools. The English Navy is clearly superior to the Icelandic Navy, but the United Kingdom opted for a settlement that caused great hardship among its fishermen instead of forcing its way into the waters claimed by Iceland.

A new world order is evolving, and it calls for different responses.

The Navy's missions have not changed basically in the past two decades. Its principal tasks are still to maintain sea control, project power ashore, and maintain an overseas presence during peacetime. Until the middle of the 1960's, few experts questioned the Navy's ability to fulfill these missions. With the rapid rise of the Soviet Navy during the 1960's and early 1970's, some experts argued that the Navy had lost its ability to control the seas and project power in areas of vital importance to U.S. national security. Others, including the current Chief of Naval Operations, maintain that if current trends continue the United States will lose it in the next 5 to 10 years.

There is general agreement about the growing strength of the Soviet Navy, but not about its intentions or about the need for the U.S. Navy to counter Soviet moves in the oceans. There are those who argue that the United States could considerably reduce its overseas commitments, especially in Asia, and cut back on naval deployments accordingly. Others maintain that in view of the growing Soviet threat, the U.S. Navy needs to be expanded from the current 477, active fleet, to 600 ships in order to meet current overseas commitments. Finally, some believe that the United States can continue to meet its current commitments only with an 800-ship Navy.

Different naval requirements are presented by the current Chief of Naval Operations and by his two predecessors. The current Chief of Naval Operations, Admiral Holloway, considers a 600-ship Navy the minimum which is acceptable. He argues that a 540-ship Navy—current active and reserve fleet, “falls considerably short—very short of what Joint Chiefs of Staff consider to be the prudent-risk-force levels for the U.S. Navy.”⁷⁷ The previous Chief of Naval Operations, Admiral Zumwalt, maintained that a 770-ship Navy was required to fulfill American commitments. His predecessor, Adm. Thomas Moorer, testified that he believed 850 ships were necessary to perform

⁷⁷ Testimony by Admiral Holloway. U.S. House of Representatives, Committee on Armed Services, Hearings on Military Posture and H.R. 11500, pt. 1, Washington, D.C., February 1976, p. 801.

the missions assigned to the U.S. Navy.⁷⁸ Are these figures based on different foreign policy considerations and consequently on different projections of naval missions and tasks? Are there considerable differences in the perception of the Soviet Naval threat? At a hearing before the Armed Services Committee of the House of Representatives in March 1976, Admiral Holloway maintained that a 600-ship Navy was designed for a potential two-ocean war against the Warsaw Pact nations, and, in addition, for the maintenance of sea lines of communication (SLOC) with South America.⁷⁹ The specific reference to South America suggests no such sea control capability in the Indian Ocean. Moreover, South American SLOC have little meaning because even a small Navy could provide such protection. Testifying before the Senate Armed Services Committee in February 1976, the admiral said that the 600-ship Navy "would be capable of carrying out the strategy on the NATO southern flank while protecting vital POL (petroleum and oil lubricants) and supply SLOC (sea lines of communication) in the Western Pacific and the Indian Ocean."⁸⁰

Does the testimony before the Senate Armed Services Committee imply that a 600-ship Navy will enable the Navy to deploy units in the Indian Ocean to secure the oil supply lines, or does it mean, as Admiral Holloway said elsewhere, that the supply lines from the Middle East will be defended by preventing Soviet ship movements from the North Atlantic to the Indian Oceans?⁸¹ In view of the Soviet build-up of naval bases in the Red Sea, Somalia, and possibly elsewhere around the African continent, can a 600-ship Navy keep those vital supply lines open?

SPECIFIC PROPOSALS FOR THE U.S. FLEET OF THE FUTURE

When Admiral Zumwalt became Chief of Naval Operations in 1970, he concluded the U.S. Navy was in danger of losing both sea control and the ability to project power ashore because of the growth of the Soviet fleet and the rapid decline in U.S. naval capabilities. He developed a long-term plan to reoptimize the Navy to meet the Soviet challenge. The plan called for integration of all aspects of maritime power and for the development of a balanced fleet. Following the Soviet example, where Air Force, Army, merchant marine, and the fishing and oceanographic fleet all contribute to the Navy mission, he tried—in vain—to persuade the Government to acquire similar assets in order to enhance the total power it might bring to bear in a crisis.⁸² Zumwalt was convinced that the power projection naval forces were adequate, but that more and different ships were needed for the sea control mission. He worked out a plan for a balanced Navy of high-performance ships and weapons systems—which we already had—with great flexibility and versatility, but costly, and moderate-cost, moderate-performance ships and systems that could

⁷⁸ See: Quoted by Admiral Widdell. See: U.S. House of Representatives, Committee on the Budget, Force Structure and Long Range Projections, Hearings for the Task Force on National Security Programs. Washington, D.C., July 1975.

⁷⁹ Hearings on Military Posture and H.R. 11500, pt. 4, op. cit., p. 648.

⁸⁰ U.S. Senate, Committee on Armed Services, Hearings, Fiscal year 1977 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve and Civilian Personnel Strength, pt. 2, Washington, D.C., February 1976, p. 1152.

⁸¹ See: U.S. Senate Committee on the Budget, Task Force on Defense, Seminars, Service Chiefs on Defense Mission and Priorities, Sept. 18, 1975, Washington, D.C., 1976, p. 15.

⁸² See: Adm. Elmo R. Zumwalt, "High-Low", op. cit., p. 4.

be turned out in relatively large numbers. Such a balanced Navy would insure that the Navy could be at enough places at the same time without spreading forces too thin, and get the job done.⁸³ The mix would provide for optimum capacity within an acceptable budget. The different classes of smaller vessels would operate in coastal waters as strike vessels against enemy surface craft and as escorts for convoys and merchantmen or naval auxiliaries. The Zumwalt plan visualized starting work on four new classes of ships, all designed primarily for sea control—guided-missile hydrofoil patrol boats, patrol frigates, small helicopter-V/STOL carriers, and very fast troop transports equipped with aircraft.

The Zumwalt proposal had the advantage of both optimum performance and cost-effectiveness. Project 60, as the plan was called, was offered as an alternative to the construction of large and costly high-performance ships. In Zumwalt's own words:

... An all-high Navy would be so expensive that it would not have enough ships to control the seas. An all-low Navy would not have the capability to meet certain kinds of threats or perform certain kinds of missions. In order to have both enough ships and good enough ships there had to be a mix of high and low.⁸⁴

TABLE 4.—*Summary of projected shipbuilding costs*¹
[In millions of fiscal year 1977 constant dollars]

Type	Expansion program		Sustaining program		Difference	
	Number	Total cost	Number	Total cost	Number	Cost
Ballistic missile submarines -----	23	19,992.0	23	19,992.0	0	0
Attack submarines -----	29	8,946.5	10	3,085.0	19	5,861.5
Large carriers -----	4	8,081.2	4	8,081.2	0	0
Light carriers -----	5	1,960.0	5	1,960.0	0	0
Cruisers -----	5	5,078.0	5	5,078.0	0	0
Destroyers -----	44	16,414.7	44	16,414.7	0	0
Escorts -----	51	8,450.7	0	0	51	8,450.7
Amphibious -----	9	1,350.0	4	600.0	5	750.0
Replenishment -----	24	3,246.2	13	1,629.4	11	1,616.8
Auxiliaries -----	64	6,633.2	60	5,591.1	4	1,042.1
Total -----	258	80,152.5	168	62,431.4	90	17,721.1

¹ This table was compiled by aggregating costs shown in the detailed analysis, many of which are estimates derived by indexing costs of earlier ships to fiscal year 1977 dollars. As such, they should not be considered exact, but representative, within a range of 10 to 15 percent.

SOURCE: Alva M. Brown, Jr., "U.S. Naval Expansion Program: An Analysis of the Cost of Expanding the Navy from 500 to 600 Ships," (Washington, D.C.: The Library of Congress, Apr. 7, 1976), p. 10.

Admiral Zumwalt's successor as Chief of Naval Operations Adm. James L. Holloway III, is equally concerned about declining U.S. naval capabilities. He believes that the fleet today is only 60 to 70 percent as effective against the Soviet threat today as the fleet in 1967 was against the Soviet threat in 1967.⁸⁵ Testifying before the House Armed Services Committee, he said that at the current rate of expansion of Soviet naval capability, the balance of maritime superiority will tip in favor of the Russians within the next 5 to 10 years,

⁸³ Ibid.

⁸⁴ Zumwalt, "High-Low", op. cit.

⁸⁵ Testimony before the House Armed Services Committee on Mar. 2, 1976. See: U.S. House of Representatives, Committee on Armed Services, Subcommittee on Seapower and Strategic and Critical Materials, *Hearings on Military Posture and H.R. 11500*, Washington D.C., March 1976, p. 647.

if the United States were simply to maintain the status quo of our current force structure.⁸⁶ Holloway stated that if the United States is not to surrender what superiority we have at sea, the fleet has to be rebuilt starting this year, because it takes an average of 5 years for an authorized construction program to become operational in the fleet.⁸⁷ To carry out its missions properly, the Navy, in his view, needs a balanced fleet of about 600 ships. To achieve that goal in about 15 years, slightly more than 19 ships need to be constructed annually in addition to the 88 new ships already authorized by the end of 1976.⁸⁸ The main difference between the composition of a 500-ship Navy (compared with the current 477), and his proposed 600-ship Navy, is in the procurement of an additional 51 escorts, 19 attack submarines, and 11 replenishment ships.⁸⁹ The expanded program would cost an estimated \$17.7 billion more than the cost of maintaining a 500-ship Navy. (See Table 4.) The force proposed by the Chief of Naval Operations would be a two-ocean Navy, one which could prevail in a NATO-Warsaw Pact conflict and which would carry out its responsibilities against the anticipated Soviet threat under the circumstances of a two-ocean war. In addition, the Navy would be able to maintain sea lines of communication with South America.⁹⁰ It would include some of the new ships proposed by Admiral Zumwalt in Project 60 to strengthen sea control capabilities.

A number of other proposals for future naval construction programs have been presented by both Navy and civilian experts. Vice Adm. George P. Steele, former commander the the 7th Fleet, maintains that the best way to counter the Soviet naval threat is by emphasizing the construction of more attack submarines. The U.S. submarines, using torpedoes and in the future guided-missiles, are said to be the most effective weapon in destroying enemy surface combatants. The only adversary the submarine really need fear, according to Steele, is another and better submarine, down in the sea with it, using the same advantage of mobility and strength. The admiral, himself a former submarine commander, maintains that U.S. submarines are markedly superior to Soviet submarines, and that deploying them in large numbers will put the United States in an offensive, and the U.S.S.R. in a defensive, position.⁹¹ Not all of the attack submarines need be of the expensive, high-performance type of the current fleet; many could be less expensive, limited mission submarines. They should, however, all be nuclear because nuclear submarines are quieter and can operate effectively submerged for at least 60 days. Diesel submarines are quieter when operating on batteries, but they have to snorkel periodically.

Vice Admiral Steele believes that the construction of aircraft carriers and strike cruisers should be deemphasized. Instead, there is a need to design new surface ships which can absorb punishment better than our current surface fleet and still be able to fight. Finally,

⁸⁶ *Ibid.*, p. 632.

⁸⁷ *Ibid.*,

⁸⁸ Alva M. Bowen, Jr., *U.S. Naval Expansion Program: An Analysis of the Cost of Expanding the Navy from 500 to 600 Ships*, Washington, D.C.: The Library of Congress, Apr. 7, 1976, p. 10.

⁸⁹ *Ibid.*, p. 10.

⁹⁰ *Hearings on Military Posture and H.R. 11500*, pt. 4, op. cit., p. 648.

⁹¹ Vice Adm. George P. Steele (ret.), "A Fleet to Match our Real Need," *Washington Post*, May 16, 1976.

Admiral Steele calls for the need to regain supremacy in electronic warfare and for a variety of sophisticated missiles.⁹²

Another critic of the current composition of the fleet, Senator Robert Taft of Ohio, maintains that the limited number of platforms from which naval aircraft operate make these platforms tempting targets for concentrations of Soviet missiles.⁹³ Recognizing both the vulnerability and the flexibility of the large carriers, Senator Taft recommends that the 12 large carriers planned by the Navy should be maintained. He is opposed, however, to the construction of additional large carriers and carrier escorts. Instead, Senator Taft emphasizes the need for low-cost platforms for aircraft and other new types of low cost but effective ships.⁹⁴

Senator Taft's proposal is in accord in many ways with the Project 60 proposals of Admiral Zumwalt and with a proposal by Norman Polmar.⁹⁵

Polmar suggests that the large carrier, should not be screened by the planned Aegis strike cruisers, but rather by smaller carriers which would provide more antiship and strike capabilities than the Aegis cruisers.⁹⁶ He also favors attack submarines which are effective and highly survivable. Polmar writes that an all aircraft-carrier-submarine fleet is interesting to contemplate because of the threat such a force would present to naval planners. For the dollar investment, considering U.S. surface combatant designs, an all carrier-submarine mix could provide the highest capability for dollar investment.⁹⁷ Other plans call for further cooperation between the Air Force and the Navy.

During the period when the U.S. Navy had overwhelming superiority at sea, such cooperation was neither needed nor wanted. The Air Force was not interested in diversifying from its primary functions, and it was also not convinced that Air Force weapon systems could contribute significantly to sea control.⁹⁸

Today, the Soviet Navy is seriously challenging U.S. sea control. Technological innovations make it possible now for the Air Force to contribute significantly to sea control with its precision-guided munitions and improved air-surveillance capability. Operating from existing bases, the Air Force can intercept Soviet forces and shipping in the North Atlantic, Mediterranean, Northwest Pacific, South China Sea, and Bay of Bengal. Air refueling can further increase the range of aircraft and allow broadened search areas.⁹⁹

With respect to sea surveillance, the U.S. Air Force can keep track of and control air battles with the aid of satellites, provided they are willing to make some modifications in aircraft and to train person-

⁹² Ibid.

⁹³ Senator Robert Taft, Jr., "A Modern Military Strategy for the United States," White Paper on Defense, Washington, 1976, p. 46.

⁹⁴ Ibid., pp. 46, 47.

⁹⁵ Adm. Elmo R. Zumwalt, "High-Low", op. cit. Norman Polmar, "A Fleet for the Future: Some Modest Suggestions", Sea Power, April 1976.

⁹⁶ Polmar, "A Fleet for the Future," op. cit., p. 15. Naval spokesmen argue that a major problem is in detection, battle management, and SAM usage against massive raids. Small carriers do not add much here.

⁹⁷ Ibid., p. 16. Naval spokesmen argue that such a fleet may suffer from lack of ASW capacity.

⁹⁸ Maj. Gen. Robert N. Ginsburgh (USAF ret.), "A New Look at Control of the Seas", Strategic Review, winter, 1976.

⁹⁹ Ibid.

nel for such missions. By combining the new surveillance capabilities with the new capabilities for precision guided missiles, the U.S. Air Force could significantly enhance U.S. ability to control the seas.¹⁰⁰ Thus, with certain modification in aircraft and training programs, the Air Force might be able to cooperate with the Navy in search and identification-electronic warfare, tactical deception, attack against surface and air units, and aerial minelaying. Air Force resources could be trained for tasks which complement and supplement sea control operations and for which inherent capability already exists, according to General Ginsburgh.¹⁰¹

Admiral Zumwalt would like to go further and provide for some, if not all, of the Air Force's tactical air wings to be carrier capable, so that the United States would be able to deploy optimal airpower in a typical crisis.¹⁰² This proposal, however, would require an entirely new design of aircraft.

The foregoing proposals illustrate the dilemma of the U.S. Navy. The Soviet Navy has become a serious threat to U.S. sea control and power projection in areas of vital importance to the Western Alliance. The U.S. Navy has to respond to this threat and still remain within politically acceptable budget limits. Various experts have suggested response to the Soviet threat, but their views are sometimes diametrically opposed, as, for example, the Steele and Taft proposals. Adding to the dilemma is the rapidity with which technology is advancing in every conceivable area, while ship construction leadtimes continue to grow due to the sophistication of modern combatants. Hence, ships commissioned today may not meet the requirements of the 1980's and 1990's when they are to be deployed.

U.S.-U.S.S.R. MERCHANT MARINE CAPABILITIES

INTRODUCTION

A nation's seapower is determined not only by the weapons and armed forces with which it can affect events at sea but also by its merchant marine, fishing fleet, and oceanographic fleet, and by its maritime outlook and traditions. Admiral Mahan perceived the sea as a great highway or a wide commons which provides nations having access to it with a means of transport that is easier and cheaper than any which exists across land.¹⁰³ In fact, Admiral Mahan considered the merchant marine of such overwhelming importance to the concept of seapower that in his view a nation without a significant merchant marine had no need for a navy.¹⁰⁴ The existence of a U.S.

¹⁰⁰ Ibid.

¹⁰¹ Ibid.

¹⁰² Adm. Elmo R. Zumwalt, "High-Low", op. cit., p. 4. Zumwalt points out that in three of the four crises during the time he was Chief of Naval Operations (Jordan 1970, India-Pakistani war of 1971, and the Yom Kippur war of 1973), the U.S. Air Force was totally incapable of playing a role due to lack of airfields; only carrier aviation could be brought to bear in these areas.

¹⁰³ Alfred T. Mahan, op. cit., p. 25.

¹⁰⁴ Ibid., p. 26. It is interesting to compare Mahan's remarks on the decline of the U.S. Navy in the latter part of the 19th century with the current situation. Mahan wrote in 1890: "The ships that thus sail to and fro must have secure ports to which to return, and must, as far as possible, be followed by the protection of their country throughout the voyage. This protection in time of war must be extended by armed shipping. The necessity of a Navy, in the restricted sense of the word, springs, therefore, from the existence of a peaceful shipping, and disappears with it, except in the case of nation which has aggressive tendencies, and keeps up a navy merely as a brand of the military establishment. As the United States has at present no aggressive purposes, and as its merchant service has disappeared, the dwindling of the armed fleet and general lack of interest in it are strictly logical consequences. When for any reason sea trade is again found to pay, a large enough shipping interest will reappear to compel the revival of the war fleet."

merchant marine is of even greater importance today, for the economic and political independence of the United States, than it has been at any other time in the peacetime history of the country. In the past 10 years alone, foreign trade has grown from 7 percent of the Nation's GNP to 14 percent; most of the overseas trade is shipped by boat. Overseas imports of oil have grown to more than 7 million barrels per day and are projected to rise to between 9 million and 10 million barrels per day by 1980. Of 27 essential raw materials required by the United States, 10 are imported in excess of 75 percent and 19 in excess of 25 percent.¹⁰⁵ Without access to those raw materials, the country would quickly cease to function.

By contrast, the Soviet Union is a net exporter of oil, primarily overland to Eastern and Western Europe. The U.S.S.R. is much less dependent on imported raw materials than the United States.

Among the 10 largest merchant fleets of the world today, only the 9th and 10th on the list—the U.S. and the U.S.S.R.—have large navies. Several of the eight other nations with large merchant fleets depend completely, or in part, on the U.S. Navy for protection of commerce in peacetime and protection of sea lines of communication in wartime.

The need for a viable merchant marine has not only been defended for reasons of national security, but also for economic reasons.

COMPARATIVE STRENGTH AND WEAKNESSES OF THE UNITED STATES AND SOVIET MERCHANT MARINE

During the Second World War, the Soviet Union lost nearly half of its merchant marine, in tonnage, or about 380 vessels. Many of its shipyards were devastated in the fighting. In 1946, the Soviet fleet was about one-twentieth the size of the U.S. fleet: The U.S.S.R. had a merchant marine of about 400 ships or 2 million deadweight tons (dwt)—of which 0.5 million tons of the newest and best ships was provided by the United States under the Lend-Lease Act while the United States had a merchant marine fleet of 50.8 million deadweight tons.¹⁰⁶ As of December 31, 1975, the Soviet Union had 2,352 and the United States 580 merchant vessels. The United States held a slight edge over the Soviet Union in total tonnage: 15.3 million versus 15 million tons; the United States has the 9th, and the Soviet Union the 10th, largest merchant marine fleet in the world.¹⁰⁷ The U.S. fleet is considerably older than the Soviet fleet. The Soviet fleet is projected to increase by about 22 percent, from 15.1 million deadweight tons at the end of 1975 to 18.4 million deadweight tons at the end of 1980.¹⁰⁸ If ship procurement is accomplished according to plan, the Soviet merchant marine may surpass the U.S. merchant fleet, in tonnage, within the next few years. Comparing the size of the merchant fleet of the two countries in relation to the volume of overseas trade carried in domestic flag ships, the Soviet Union today performs much better than the United States.

¹⁰⁵ Information received from Dr. Allan Agnew, Senior Specialist in Mining and Mineral Resources at the Congressional Research Service of the Library of Congress.

¹⁰⁶ U.S. Congress. Senate. Committee on Commerce, National Ocean Policy Study, *Soviet Ocean Activities: A Preliminary Survey*. (committee print) Washington, U.S. Govt. Print. Off., 1975.

¹⁰⁷ See p. 333 on Soviet Shipping Strength and Its Employment, Table 3.

¹⁰⁸ *Ibid.* In the period from 1953 to 1973, the Soviet merchant fleet increased by 443 percent, while the U.S. merchant fleet decreased by 66 percent.

The Soviet Union underwent a significant expansion in international trade during the early 1960's, causing the percentage of goods carried on Soviet vessels to drop from 72 percent in 1950 to as little as 37 percent in 1962. The massive procurement program of the early 1960's reversed this trend. Today, between 55 and 60 percent of Soviet overseas trade is carried in Soviet vessels. In the United States, the percentage of goods shipped in domestic vessels has continued to drop since the end of the Second World War, when the Nation emerged as the world's leading maritime nation. The percentage of ocean-borne trade carried in U.S. vessels declined from 81.9 percent in 1947 to 4.5 percent in 1969—percentage of total cargo tonnage.¹⁰⁹ Passage of the Merchant Marine Act of 1970 resulted in an increase in merchant ship construction. The percentage of overseas trade carried in U.S. vessels, in volume, increased to about 6.5 percent in 1974, but it declined to 5.1 percent in 1975.

The composition of the merchant fleets of the U.S.S.R. and the United States is quite different. The former is still dominated by conventional general purpose dry cargo ships on which general cargo is loaded piece by piece. The U.S. merchant fleet is more specialized, with tankers, container ships, and bulk carriers making up the bulk of the fleet. The ongoing Soviet 5-year plan emphasizes procurement of tankers and bulk carriers, roll on/roll off, and Seabee cargo vessels.

By comparison with the merchant fleet of Japan, Great Britain, Norway, or Liberia, the Soviet fleet is unimpressive in size, composition, and technological sophistication. Comparing carrying capacities of major maritime powers such as the United States and the U.S.S.R., one needs to take into account that the volume of United States overseas trade is about four times that of the Soviet Union. Hence, while the two fleets are about equal in size, the Soviet Union is able to transport a much higher percentage of its overseas trade in its own ships.

MISSIONS OF THE SOVIET MERCHANT MARINE

The composition and purpose of the two merchant fleets is more important than the comparative size of the United States and Soviet merchant marine.

The Soviet Union began its major merchant fleet procurement program during the early 1960's for a number of reasons. Trade grew so rapidly in the late 1950's that the percentage of trade shipped in Soviet vessels dropped dramatically, from 72 percent in 1950 to 37 percent in 1962, causing a drain on foreign exchange. The desire to reduce this dependence on Western shipping was probably the principal reason for the buildup of the 1960's.

Reduction of dependence on Western shipping and foreign exchange savings could have been accomplished by entering the most lucrative trade routes with specialized vessels. Instead, the Soviet Union initially emphasized the construction of dry cargo ships and small tankers. It gradually extended shipping service to every area in the world.

¹⁰⁹ U.S. Congress. Senate. Committee on Commerce, National Ocean Policy Study, Soviet Ocean Activities: A Preliminary Survey, op. cit., p. 19.

Soviet merchant marine policy can only be understood within the context of the Soviet concept of seapower. No element of seapower can be allowed to develop without regard for the impact it will have on other elements. It has been suggested that because of their determination to lessen the economic ties between Third World countries and the West, and to further their political and national security interests, the Soviet Union has entered almost every conceivable overseas trade route, regardless of the economics of the venture. The minister of the Soviet merchant fleet has openly admitted that maritime transport has carried out a number of responsible assignments of the Communist Party, bearing not only an economic, but also a political character.¹¹⁰

Unlike Japan, Great Britain, or Norway, the Soviet Union has not allowed its merchant marine to be influenced by purely commercial forces. In a recent article on the Soviet merchant marine, Prof. Richard Ackley lists three noncommercial purposes of the Soviet merchant marine:

First, to insure that large quantities of arms and equipment can be supplied to client nations, at short notice if required.

Second, to provide the lift for followup forces in the event of overseas interventions.

Third, to serve, through the presence of its ships and their companies in distant parts of the world, as an influence-building instrument of policy.¹¹¹

The Soviet Union today possesses a merchant marine that can efficiently and effectively perform both its commercial peacetime and wartime objectives. They have proved in Vietnam that they have a growing capability for long range sealift that can sustain friendly forces over extended periods, while enjoying immunity from retaliation.¹¹² Such efforts provide the Soviets with sufficient shipping and operational experience to be able to undertake distant limited war operations herself someday.¹¹³

Many Western observers argue that the Soviet merchant marine is no match for the efficient, specialized merchant fleets of the Western maritime powers. On the other hand, the small Soviet general cargo vessels, with self-unloading equipment, are particularly suitable for trade with the developing countries which have generally less developed port facilities. Professor Ackley argues that, although the economic gain from trade with developing countries may be modest, "it appears that establishing a foothold in the economic and political structure of these countries is a motivating force for Soviet actions".¹¹⁴ In times of war, dry cargo vessels with self-unloading equipment are

¹¹⁰Transportation Institute, *Analysis of the Direct Impact of the Merchant Marine on National Security*, Washington, D.C., May 1976, p. 5-1.

¹¹¹Richard T. Ackley, "The Soviet Merchant Marine," U.S. Naval Institute Proceedings, vol. 102, No. 2/876, February 1976, p. 26.

¹¹²When the United States mined Haiphong, Soviet merchant vessels continued to unload their cargo at sea onto small barges.

¹¹³*Ibid.*, pp. 33, 34. Dr. Ackley maintains that evidence exists to demonstrate the Soviet merchant marine's capability to support deployed naval squadrons. He points at Soviet warship probes into the Caribbean Sea and cruises off the Hawaiian Islands indicating that the merchant marine can provide necessary logistic support to deployed naval formations, and infers from this that similar support to intervention forces may be possible. Dr. Ackley also argues that the limiting factor is the lack of Soviet air support needed for the projection of military forces in the face of sophisticated opposition. The deployment of the Soviet carrier *Kiev* may be the beginning of the required air support.

¹¹⁴*Ibid.*, p. 35.

important because they can unload supplies under adverse port conditions.

Finally, the sheer number of the relatively modern Soviet merchant fleet—the fifth largest in terms of numbers of ships—together with the large number of modern fishing, oceanographic, and naval vessels, tends to reinforce Soviet claims to scientific and technological supremacy and to enhance the appeal of the Soviet model as the route to rapid national development.¹¹⁵

Since the Soviet merchant fleet is government-owned and operated, it can be used as an instrument of government policy independently from commercial consideration. This fact gives it a potential for rate cutting that cannot be matched by privately owned fleets. Of the 58 Soviet international cargo lines, only five are affiliated with a shipping conference. William Carr observed that as nonconference operators Soviet steamship companies running conventional and container services on her trade routes, such as the North Pacific between the United States and Japan and the North Atlantic between the United States and Western Europe, charge rates at least 15 percent below those charged by the conference lines. The U.S. Department of Commerce has indicated that the Soviet Far East Shipping Co. has attracted a substantial share of the cargo moving between U.S. Pacific ports and the Far East by offering freight rates consistently lower than the established conference rates. This practice, which already has been a cause for concern among western shipowners, is likely to become a more serious threat when the Soviets begin to obtain more competitive ships.¹¹⁶ Competition on these terms is potentially destructive to U.S. shipowners and, eventually, to shippers.¹¹⁷

PURPOSE OF THE U.S. MERCHANT MARINE

As a branch of industry (our navigation) is valuable, but as a resource of defense, essential. Its values as a branch of industry is enhanced by the dependence of so many other branches on it. In times of general peace it multiplies competitors for employment in transportation, and so keeps that at its proper level, and in times of war—that is to say when those nations, who may be our principal carriers, shall be at war with each other—if we have not within ourselves the means of transportation, our produce must be exported in belligerent vessels, at the increased expense of war freight and insurance, and the articles which will not bear that must perish on our hands.

But it is as a resource of defense that our navigation will admit neither neglect nor forbearance. The position and circumstances of the United States leave them nothing to fear on their land board, and nothing to desire beyond their present rights. But on their seaboard they are open to injury, and they have there, too, a commerce which must be protected. This can only be done by possessing a respectable body of citizen seamen and of artisans and establishments in readiness for shipbuilding.

Thomas Jefferson, 1793.¹¹⁸

¹¹⁵ *Ibid.*

¹¹⁶ See chapter on Soviet Shipping Strengths and Its Employment, p. 188. and: Hearings on Merchant Marine Oversight, pt. 1, op. cit., p. 389.

¹¹⁷ Lower rates can result in reduction of merchant marines of other nations, thereby creating a market volatile to future price increases. From the purely economic point of view, this practice might not be entirely unprofitable to the United States, if there were a guarantee that it would be continued in the future. This kind of competition, like dumping, frequently lowers the number of participants in the trade, which in turn would allow the country offering the low rates to substantially increase the rates once the competition has been eliminated. From the national security point of view, increased western shipping on subsidized rate-cutting Soviet vessels does in fact imply a western contribution to the growth of the dual-purpose Soviet merchant marine. This practice, which already has been a cause for concern among western shipowners, is likely to become a more serious threat when the Soviets begin to obtain more competitive ships.

¹¹⁸ Quoted from a statement by Robert J. Blackwell, Assistant Secretary of Commerce for Maritime Affairs before the House Subcommittee on Merchant Marine on Aug. 1, 1975.

See: U.S. House of Representatives, Committee on Merchant Marine and Fisheries, Subcommittee on Merchant Marine, Hearings on Merchant Marine Oversight, pt. 1, Washington, 1976, p. 371.

These arguments in defense of maintaining a viable merchant marine, used by Thomas Jefferson in a letter to the House of Representatives in 1793, are equally valid today. The U.S. maritime industries, which once feared competitors on the oceans during the days of the fast Yankee clippers, have long since ceased to be industries capable of surviving without government subsidies.¹¹⁹

The maintenance of viable U.S. maritime industries has been defended on the basis of economic—jobs, balance of payments—and national security interests. Although there is general agreement on the national security aspects, experts differ on the economic arguments with respect to Federal subsidies for shipbuilding and shipping.

Proponents of subsidy programs have pointed out that U.S.-flag merchant ships provide employment for more than 50,000 seagoing sailors and provide 200,000 man-years of employment in the ship construction industry.¹²⁰ The contribution of the merchant marine to the U.S. balance-of-payments position has been estimated to be at about \$700 million per year.¹²¹ Critics of the economic arguments in favor of subsidizing U.S. maritime industries maintain that the steady employment on those industries is taking place at high government expense. They argue that one should look at the opportunity cost of the subsidy—many skilled workers in shipyards can work elsewhere in nonsubsidized jobs.¹²² As far as the balance-of-payments argument is concerned, critics say that the United States may be better off subsidizing some other industry which does not require as large a subsidy as the maritime industries.¹²³

National security considerations for government subsidy programs are the least controversial. It is generally accepted that the United States needs a balanced merchant marine (1) to serve as an auxiliary force to the Navy in time of emergency and (2) to haul a substantial portion of overseas trade in times of peace. The Maritime Administration of the Department of Commerce is responsible under the law for administering the maritime program in such a way as to provide for a strong U.S. merchant marine capable of meeting the needs of national defense and security. Section 101 of the Merchant Marine Act, 1936, which has never changed in subsequent revisions of the Act, provides as follows:

It is necessary for the national defense and development of its foreign and domestic commerce that the United States shall have a merchant marine (a) sufficient to carry its domestic water-borne commerce and a substantial portion of the water-borne export and import foreign commerce of the United States and to provide shipping service essential for maintaining the flow of such domestic and foreign water-borne commerce at all times, (b) capable of serving as a naval and military auxiliary in time of war or national emergency, (c) owned and operated under the United States flag by citizens of the United States insofar as may be practicable, (d) composed of the best-equipped, safest, and most suitable types of vessels, constructed in the United States and manned with a trained and efficient citizen personnel, and (e) supplemented by efficient facilities for shipbuilding and ship repair. It is hereby declared to be the policy of the United States to foster the development and encourage the maintenance of such a merchant marine.¹²⁴

¹¹⁹ A study prepared for the Maritime Administration indicated that ship construction and the operation of merchant marine vessels is being subsidized in most other countries as well.

See: U.S. Department of Commerce, Maritime Administration. *Foreign Maritime Aids*, Washington, D.C., December 1974.

¹²⁰ *Hearings on Merchant Marine Oversight 1975*, op. cit., p. 372.

¹²¹ *Ibid.*, p. 386.

¹²² *Ibid.*, p. 61.

¹²³ *Ibid.*, p. 63.

¹²⁴ 46 U.S.C. 1101, 49 Stat. 1985, 84 Stat. 1018, Public Law 91-469.

Experts disagree on the question whether the act has been properly implemented. Only in recent years has the Government paid substantial subsidies for the construction and remodeling of merchant vessels, under the Merchant Marine Act of 1970.¹²⁵ But has the size and composition of the subsidized fleet taken defense needs sufficiently into account?

U.S. MERCHANT MARINE RESPONSE TO DEFENSE NEEDS

The number of government-owned ships operated by the Military Sealift Command has never been enough to move more than a fraction of a major support requirement. The Department of Defense has always depended heavily on the U.S. merchant marine to support major military contingencies. This dependence on the merchant marine and on the national defense reserve fleet is likely to increase even more in the future because most of the remaining government-owned ships will have to be retired due to age and material conditions. In the event of a NATO war, commitments to help support U.S. deployments have been made for the early availability of ships belonging to NATO partners. Those NATO ships will be dearly needed in view of the fact that the U.S. merchant marine and the national defense reserve fleet can supply less than 450 ships out of the 900 to 1,000 vessels which are projected as necessary to meet U.S. military and economic shipping requirements in a major war.¹²⁶

Recent studies indicate, on the basis of the movement requirements anticipated in a NATO-Warsaw Pact war, that the U.S. and NATO merchant fleets together will only be marginally adequate to meet the deployment and resupply objectives.¹²⁷

Dr. John Bennett, Acting Assistant Secretary of Defense for Installations and Logistics, testified before the Subcommittee on Merchant Marine of the House Committee on Merchant Marine and Fisheries that any further diminution in the capability of the U.S. merchant marine would severely impact our marginal capability to support a conventional defense of Europe.¹²⁸ Dr. Bennett's fears could very well become reality because of pending bloc retirement of most of the national defense reserve fleet. About 130 of the 450 U.S. flag vessels listed are 30-year-old Victory ships approaching the limit of their usefulness.¹²⁹

Under the 1970 Merchant Marine Act, contracts have been entered into for 58 ships, with construction subsidies (by 1975).¹³⁰ Of these, according to Assistant Secretary of Commerce Robert J. Blackwell,

¹²⁵ The Merchant Marine Act of 1970 has resulted in the construction of 58 ships, but the ship-building program has fallen considerably short of its objectives. A substantial portion of the funds requested and appropriated for fleet construction and support remains unspent.

¹²⁶ Hearings on Merchant Marine Oversight 1975, op. cit., pp. 8 and 370.

¹²⁷ Ibid., p. 8.

¹²⁸ Ibid., p. 8.

¹²⁹ There are plans to modernize 30 of those NDRF vessels to extend their usefulness another 20 years.

¹³⁰ Hearings on Merchant Marine Oversight 1975, op. cit., pp. 8 and 370.

37, or 64 percent, can be used in direct support of military forces; if one includes the six LNG carriers which can be converted into oilers for the Navy, this figure rises to 55, or 95 percent.¹³¹

The Department of Defense is not as optimistic as MARAD. Assessing defense ocean shipping needs for peace and war, Dr. John Bennett concluded that the major concern of the Defense Department is the shortage of general cargo vessels which could quickly be made available in a minor contingency situation where allied support is absent and ship requisitioning is not possible. The total general cargo assets available to the Defense Department for a major deployment effort, including specific NATO shipping allocations in the case of a NATO effort, are only marginally adequate to meet defense needs.¹³² These ships are no longer being built (not even under the 1970 act) because they are no longer efficient in view of the emergence of specialized Lash and Seabee carriers, container and roll-on/roll-off vessels. While those ships are very valuable for defense needs, some of them are only useful where there are highly developed port facilities. The military must plan for the use of unsophisticated ports, ports destroyed or sabotaged, or even possibly over-the-beach unloading. These factors, according to Dr. Bennett, require the availability of some vessels with self-contained cargo handling capacity.¹³³ A significant portion of military cargo cannot, in a practical sense, be containerized.

The United States had sufficient self-sustained general cargo ships available during the Korean and Vietnam wars. Today, there are only 35 post-World War II conventional general cargo vessels available, in addition to the 130 obsolete Victory ships in the national defense reserve fleet.¹³⁴ The trend appears to be toward further construction of big tankers, or carriers and LNG carriers.¹³⁵

MARAD's dilemma has been to subsidize, with the limited funds available, a merchant marine capable of meeting direct defense needs and other national security interests, with commercial requirements. There is little doubt that defense interests have been taken into account in the construction subsidy program, but the less efficient general self-sustained dry cargo ships have lost out to the more efficient specialized cargo vessels. MARAD's efforts to compromise show up in the list of constructed and projected (by 1975) deliveries. Out of a total of 55 subsidized ships, 13 are Lash and Seabee or roll-on/roll-off ships, which are not as flexible as the conventional general cargo vessel, but which are much more efficient than containerships and general cargo vessels, while maintaining much of their flexibility.¹³⁶ The addition or modification of certain features to these ships to

¹³¹ Ibid.

¹³² Ibid., p. 4.

¹³³ Ibid.

¹³⁴ Ibid., p. 5.

¹³⁵ Ibid.

¹³⁶ Ibid., pp. 9 and 10.

A recent study by the Transportation Institute concludes that the use of merchant vessels for underway refueling could provide direct dollar savings and even increased fleet flexibility. In addition to providing comparable services to the Navy at less costs, the Navy was said to benefit from such a program because it would result in making available a considerable number of merchant seamen trained to operate with the Navy.

See: Transportation Institute, *op. cit.*, p. ii.

insure that military cargoes could be readily handled has been suggested. Preconstruction design features (for example, special power outlets, strong points, or space for additional wartime communications equipment) would be of insignificant cost and would allow for very rapid utilization for military sealift during periods of crisis or war. Such modifications would involve little cost if done at the time of construction.

Defense needs are also taken into consideration by MARAD in the so-called National Defense Features (NDF) program, by adding certain additional defense design standards (for example, hull compartmentation to minimize the effects of torpedo hits, improved shock resistance, additional electrical power and evaporating capacity, and increased speed).¹³⁷ Admiral Zumwalt wanted to go considerably beyond the current NDF program. He had merchant ships successfully tested for refueling at sea and examined the feasibility of using commercial container ships for replenishment of ammunition and other logistics in conjunction with a heavy lift helicopter. When Zumwalt was Chief of Naval Operations, the Navy also examined the feasibility of giving supertankers the capability to handle V/STOL aircraft and antisubmarine helicopters during wartime, together with the necessary shipboard equipment, so that they could provide their own fighter, antimissile, and antisubmarine capability.¹³⁸ Although each one of those programs would have initially been costly to implement, they might have proved cost-effective in the end. Admiral Zumwalt maintains that each one of these plans was technically feasible, but that it was politically impossible to resolve jurisdictional disputes between the DOD and MARAD.¹³⁹

The feasibility of some of those Zumwalt proposals were confirmed in a recent study by the Transportation Institute. The study suggested several potential self-defense modifications to merchant ships to facilitate their use in military sealift. Installation of passive (electronic (decoy) jammer) and active (gun/missile) defense, plus the ability to provide helicopter facilities, were listed for consideration.¹⁴⁰ If planned prior to construction, such defense features can generally be added at relatively low cost. Since it provides for incorporation during normal construction scheduling, it would significantly reduce the shipyard workload during critical periods such as the beginning of hostilities or during an emergency.¹⁴¹ There are a number of other specific recommendations in the study, suggesting modification of roll-on/roll-off, container, Lash, and Seabee ships to make them adaptable to various forms of amphibious assault ships, helicopter V/STOL carriers, maintenance and communications ships, et cetera.¹⁴² But, since the 1947 defense reorganization, there has been no senior individual in the executive branch to insure the coordination of the Navy and the merchant marine, as provided for in the Merchant Marine Act of 1936.¹⁴³

¹³⁷ *Ibid.*, p. 380.

¹³⁸ Zumwalt, "High-Low", *op. cit.*, p. r.

¹³⁹ *Ibid.*, p. 4.

¹⁴⁰ Transportation Institute, *op. cit.*, p. 3-2.

¹⁴¹ *Ibid.*, p. 3-4.

¹⁴² *Ibid.*, pp. 4-1 to 4-4.

¹⁴³ *Ibid.*, p. 6-2.

With limited subsidies available, MARAD has to meet defense needs for wartime and major contingencies as well as make peacetime contributions to the maritime industry. If the United States were entirely dependent on foreign shipping, groups of maritime nations unsympathetic to U.S. objectives, or desirous of obtaining political advantage, would be capable of exercising undue leverage.¹⁴⁴ For example, OPEC oil importers intend to increase their control over the shipping of their oil to the industrial nations. It is conceivable that at some point during the 1980's (when the United States has been projected to be importing between 4.5 and 5.5 million barrels of oil per day from OPEC countries), those countries may be in a position to control a significant percentage of the tanker market.¹⁴⁵ Control of tanker tonnage by oil producers, along with wellhead control, can assure the success of a potential embargo through denial of access to alternative sources. Assistant Secretary of Commerce Robert J. Blackwell argues that the United States must consider the situation it would be in if it were without the tanker resources that have been provided for under the maritime program.¹⁴⁶

It has been argued that the United States does not need a subsidized merchant marine in view of the fact that U.S. citizens own 461 ships (or 31.5 million deadweight tons) which sail under a foreign flag. Most of the 461 ships are tankers, combination vessels, and dry bulk carriers.¹⁴⁷

Dr. Bennett maintains that these ships cannot be counted on to meet national security needs. He testified in 1975 that:

In theory, these vessels would come back to the United States in any conditions that required additional shipping. However, there are several points to consider in this matter. First, the fleet on the nation of which the vessel is operating could be a dominant factor since that country may not agree with a particular U.S. action and may order the ship to return to a neutral port or to actually commandeer the ship if it is in an area where the nation has some control or can look to friendly powers. Additionally, the loyalty of the crew could be open for question. As we have found out from instances in World War II, it is relatively easy to sabotage a merchant vessel and would require only one or two disloyal crew members to render a ship useless. Finally, there would be the question of manning it with U.S. merchant crews. The rapidly aging merchant union personnel and declining number of ships point to a possible difficulty in the future in obtaining sufficient crews to take over these vessels. In view of these considerations, the "Effective U.S. controlled fleet" should not be considered a substitute for U.S.-flag shipping to accommodate defense needs. Further, the vast majority of these vessels are tankers or ore carriers. While these vessels may well prove valuable for transporting critical materials in times of crisis, their direct military utility is limited.¹⁴⁸

Negative experiences with foreign shipping during the Vietnam war could be minimized because the United States had a larger general cargo merchant marine then which meant that the Military Sealift Command could be very selective in selecting the foreign ships to be used, but, even then, the situation was not considered satisfactory.¹⁴⁹

¹⁴⁴Ibid., p. 379. Testimony by Assistant Secretary of Commerce Robert J. Blackwell.

¹⁴⁵For oil import figures, see: U.S. Congress. Joint Committee on Atomic Energy, "Towards Project Interdependence: Energy in the Coming Decade," Washington, D.C., December 1975, p. 69.

¹⁴⁶Hearings on Merchant Marine Oversight 1975, op. cit., p. 380.

¹⁴⁷Ibid., pp. 186, 187.

¹⁴⁸Ibid., pp. 11 and 12.

¹⁴⁹Ibid., p. 12.

On the other hand, Philip J. Loree, chairman of the Federation of American Controlled Shipping, maintains that American-owned vessels can carry all the oil and raw materials the United States needs to import, and that the chances of sailors refusing to sail is slim as long as they are paid well.¹⁵⁰

Most observers, however, agree on the need for a domestic merchant marine and shipyard capacity. In view of differences of opinion on the merits of reliance on NATO and U.S.-owned foreign flag ships, they differ in their recommendations as to the size and composition of the merchant fleet. Within the current construction subsidy program, the Navy would like to see more emphasis on general dry cargo vessels and other cargo vessels (such as roll-on/roll-off ships) which are of immediate importance to their needs. An analysis of future tanker needs to carry U.S. oil imports from a variety of sources concluded that out of 46.7 million deadweight tons of tanker capacity needed in 1980 (in case the United States were to import 8 million barrels of oil per day), the United States will be able to carry 6.4 million deadweight tons, or 13.6 percent. Assuming maximum oil imports of 12 million barrels per day, 8.1 out 108.5, or 7.4 percent would be carried in U.S. flag ships. Many observers would agree that these are rather low percentages, particularly in view of the fact that a significant shift is now underway in terms of the transfer tonnage to OPEC countries. Many observers are worried that reliance on foreign flag tankers to the extent shown could subject the United States to shipping boycotts and freight rate discrimination. The U.S. merchant marine fleet provides the United States with a counter to such policies. So long as U.S.-flag carriers operate in these trades, our trading partners cannot gain commercial advantage by restricting or manipulating ocean transportation facilities and rates.¹⁵¹

Prior to the recent forecasts of staggering United States oil imports during the 1980's, a 1974 study by Robert Nathan Associates for the Senate National Ocean Policy Study estimated that the volume of U.S. overseas trade would grow, without additional stimuli, between 60 to 70 percent in the period from 1972 to 1985.¹⁵² Without additional stimuli, it is unlikely that U.S. ship construction will keep up with projected overseas trade increases. Consequently, the volume of overseas trade carried in U.S. flagships is likely to decline even further during the coming decade. The Nathan study estimates that freight, insurance, and terminal costs associated with the rapid increase in overseas trade will rise from \$9.6 billion in 1972 to \$16.4 and \$18.6 billion by 1985.¹⁵³ In 1974, U.S. flag vessels carried about 20 percent of the value of our overseas trade. Even if that figure were maintained, overseas transportation could cause an outflow of some \$7 to \$8 billion.

The demise of the U.S. merchant marine is reflected in the continuing decline in employment opportunities. According to Rear Adm. Sam M. Moore, commander of the Military Sealift Command, U.S. employment in the merchant marine declined from 115,000 at the

¹⁵⁰ *Ibid.*, pp. 186, 187.

¹⁵¹ *Ibid.*, p. 383.

¹⁵² U.S. Senate, Committee on Commerce, National Ocean Policy Study. *The Economic Value of Ocean Resources to the United States*, Washington, D.C., December 1974, p. 89.

¹⁵³ *Ibid.*, p. 93.

height of the Vietnam war to about 55,000 in 1975.¹⁵⁴ The decline in job opportunities is also evident from data concerning the average age of seagoing employees. In 1972, the median age of licensed deck and engine officers was 47.1 and 48.0 years, respectively. The comparable figures for unlicensed deck and engine workers were 45.1 and 46.3 years.¹⁵⁵ This high average age is a direct consequence of the limited opportunities for new entrants. One Federal, 6 State-supported, and 2 union schools graduated about 760 new licensed officers in 1975. During the same period, the Soviet Union trained about 5,000 full-time and 4,000 part-time officers.¹⁵⁶ The United States has 4 relatively old merchant marine training ships available for officer training schools; the Soviet Union has 22 such ships plus 12 additional fisheries training ships.¹⁵⁷

In view of the uncertainty in seagoing employment, the output of licensed officers has been projected to fall short of demand by the end of the decade.¹⁵⁸ The United States may have to act to halt the continued decline in job opportunities and to provide better long-range employment prospects in the merchant marine in order to create sufficient incentives for young people to enter a career as merchant marine officers. The depressed state of the U.S. merchant marine has had a negative effect on ship construction capacity. A study by the Commission on American Shipbuilding concluded that the U.S. shipbuilding industry had, at maximum, only one-third of the required output capacity necessary in case of a sustained conflict.¹⁵⁹

The industry suffers from a low level of profits and, consequently, it is not attractive to investors. It has problems attracting skilled personnel, even at a time of high nationwide unemployment rates. The industry also suffers from very long delivery times for specialized tools.¹⁶⁰

Without a subsidized maritime program, the United States could anticipate significant shortfalls in essential military deliveries in wartime. The American shipbuilding mobilization base would diminish, and the Nation would be much more heavily dependent on foreign flag shipping of undemonstrated reliability for the wartime movement of essential imports. The United States would also be vulnerable to prejudicial rate discrimination and perhaps also to political pressures; the U.S. balance of payments deficit could be increased significantly; and employment opportunities would be reduced.¹⁶¹ In view of the rapidly shrinking size of the Navy, any further decline of the merchant marine would reduce the U.S. presence in the Third World to occasional port calls. The sheer size of the Soviet civilian (fishing, merchant marine, oceanographic) and naval fleet, and their continuous presence in the Third World, create an impression of overwhelming soviet power. The U.S. merchant marine, which does not serve a

¹⁵⁴ Hearings on Merchant Marine Oversight 1975, op. cit.; pp. 31 and 384. The Soviet merchant marine employs about 90,000 people in seagoing positions. See table 7.

¹⁵⁵ Ibid., p. 384.

¹⁵⁶ Ibid., p. 384, and table.

¹⁵⁷ Information received from Naval Intelligence Service of the Department of Defense, August 1976.

¹⁵⁸ Hearings on Merchant Marine Oversight 1975, op. cit., p. 380.

¹⁵⁹ Transportation Institute, op. cit., p. 9-1.

¹⁶⁰ Ibid., p. 9-2.

¹⁶¹ Ibid., p. 389.

political or military role in times of peace, has concentrated on profitable liner routes to the more industrialized countries. It has been suggested that the United States develop a profitable program for American-flag merchant ships to trade with selected Third World countries. Such programs could take the form of negotiated bilateral cargo preference agreements. Such agreements could enhance political, economic, and cultural ties between the United States and the contract nations.

Many additional merchant ships must be constructed if the current percentage of U.S. overseas trade shipped in U.S. flag vessels is to be maintained. At the current building rate (about 12 new ships per year), the United States will not be able to maintain even the status quo in shipping in U.S. flag vessels. Under existing law, the United States cannot subsidize vessels for the world market nor can shipping companies receive an operating subsidy for foreign-built ships. To improve efficiency in ship construction at home and lower construction subsidies, the General Accounting Office suggested that one option for U.S. shipyards is to specialize in construction of ships requiring no or little government subsidies, such as, for example, LNG carriers, and to import other ships from abroad. It has been suggested that a combination of specialization in some yards for the world market, while continuing to construct a variety of other ships in other U.S. shipyards, would lower overall subsidies, increase total productivity in the industry, provide additional incentives to develop advances technology, and still maintain the capability to construct any other type of vessel in case of emergency.¹⁶²

The American shipbuilding industry has made a few major contributions in the advancement of world shipping technology in the decades since World War II. With the Mariner Class freighter, designed and built under MARAD auspices, the United States led the way in advancing cargo ship speeds to 20 knots from the old 15 knot norm. Since that development of the 1950's, several major advances in cargo ship design have been pioneered by our naval architects, builders, and carriers, including the containership, the Lighter-aboard Ship (LASH) barg carrier and the Sea Barge ship, the first liquefied natural gas (LNG) carrier, and the advancement of roll-on/roll-off technology.¹⁶³

U.S. maritime technology has been transferred abroad. In fact, some of our most advanced shipbuilding technology, such as seabee cargo vessel designs, have been transferred, directly or indirectly, to the Soviet Union. Both roll-on/roll-off and seabee cargo vessels add significantly to the economics of maritime transportation and are also of great importance for rapid transportation of armament under almost any port conditions. With relatively minor adjustments, roll-on/roll-off, LASH, and Seabee ships can provide an invaluable base for conversion to combat roles in a future period of sustained crisis or war.¹⁶⁴

¹⁶² *Ibid.*, pp. 754-757.

The GAO quotes the example of high-wage Sweden, where 89 percent of ship construction is for the export market in spite of the fact that current wages in that industry are higher than in the United States. The Swedes fully exploited economies of scale, specialization and advanced technology.

¹⁶³ *Ibid.*, p. 383.

¹⁶⁴ Transportation Institute, *op. cit.*, p. 4-3.

Current developments with respect to the American merchant marine are a cause for concern. U.S. overseas trade is growing at such a rapid rate that the percentage of U.S. overseas trade carried in U.S. flag vessels has shrunk to only 5.1 percent of the total volume transported (or 17.5 percent in terms of value). In view of worldwide political developments, it is necessary for the United States to maintain a merchant marine large enough and strong enough to keep competition healthy, to prevent runaway rates, and insure that reliability of service which is vital to the U.S. economy and national security.

SOVIET AND U.S. MARINE FISHERIES

During the past 25 years, Soviet fishermen have been very successful in marine fisheries. They have increased their harvest of ocean fish at an average rate of approximately 18 percent per year. In 1950, the Soviet Union harvested 1.8 million tons of fish; in 1974, it harvested 9.6 million tons. Of the total catch approximately 90 percent was caught off the coasts of foreign countries. The Soviet Union was a net importer of fish until 1959. Since then it has been a net exporter of fish. In 1974, for example, the U.S.S.R. earned \$140 million from foreign sales of fish.

During the same period, the U.S. fisheries have been stagnant. The total U.S. harvest of ocean fish was 2.4 million tons in 1950 and 2.6 million tons in 1974. Of the total U.S. catch, about 10 percent was caught in foreign waters. At the same time, American consumption of fish has increased substantially. As a result, U.S. imports of fish have grown from 1.6 billion pounds in 1966 to 2.5 billion pounds in 1974. In 1950, imported fish accounted for 25 percent of U.S. consumption. In 1974, such imports amounted to 63 percent of total U.S. consumption. The cost of fish importation was \$1.5 billion on the 1974 U.S. international balance of trade. This record is not related to the availability of coastal resources. In fact, the coastal fishery resources of the United States are larger than those of the Soviet Union.

The Soviet Union has made a remarkable comeback since the Second World War, when much of its fishing fleet was destroyed. By 1975, it had 4,400 active high-seas fishing vessels, and it was still expanding its fishing fleet. The United States, which did not suffer any serious losses in its fishing fleet during World War II, has an old fleet. Except for the tuna fleet, most of the 1,019 U.S. fishing vessels of over 100 GRT are very old (as of 1975).

The Soviet Union, in the early 1950's decided, at a high-level of government, that it should seek to increase the animal protein intake of its citizens by a rapid expansion in the supply of fish. The decision was based in part on the failure to increase agricultural production sufficiently to be able to supply such animal protein requirements by meat production.

The Soviet fishing fleet, like the merchant marine fleet, also serves a noneconomic purpose. The civilian fleet has increased the Soviet "presence" in the world's oceans. Although the civilian fleet has not been integrated with the Soviet Navy, a number of military advisors or consultants are attached to the higher planning organs of the civilian fleets and a number of ocean-going personnel and school

instructors are drawn from the ranks of Navy reservists. It is believed that some Navy personnel are assigned to the civilian fleet to operate the more sensitive types of equipment and to insure that the maximum military relevance is wrought from dual-purpose equipment.¹⁶⁵

U.S. fishermen currently harvest only about 25 percent of the estimated total maximum sustainable yield of commercially interesting species which are caught within 200 nautical miles of the U.S. coasts. The apparently poor performance of the United States in utilizing available resources was explained as follows in a study undertaken by Robert Nathan Associates for the Senate National Ocean Study:

The stagnant performance of the U.S. fish harvesting industry, and the dramatic growth of imports, reflect many factors, among which two are perhaps most important: the typically lower cost structure of many foreign fishing fleets, in some uncertain degree attributable to large subsidies; and, severe institutional barriers within the United States, which include fractionalized and uncoordinated local reputations whose numerous anti-economic features adversely affect the industry's performance.¹⁶⁶

Congressional action to protect U.S. fishery resources from serious overfishing resulted in the passage of the Fishery Conservation and Management Act of 1976. Under this act, the United States asserts complete authority over its coastal fisheries up to a distance of 200 nautical miles from its coasts, by March of 1977. The U.S. fishing industry expects, as a result, to increase landings for domestic consumption and also for the export market. However, U.S. fishermen are not likely to be able to harvest the entire maximum sustainable yield of all commercially viable marine fisheries in the water, for some time to come. The United States must, therefore, decide which foreign national will be allowed to harvest the difference between the optimum yield and the landings by American fishermen. The Soviet Union is one of the main contenders for this U.S. surplus.

In view of continued animal protein shortages on land, and potential future obstacles in maintaining its foreign catch once the 200-mile limit concept has been generally adopted around the world, the 10 to 15 percent of its total marine fisheries harvest which the U.S.S.R. takes off U.S. coasts is of great importance.

If these fisheries resources were no longer available to it, the Soviet Union could not rapidly turn to alternative resources. Thus, as a result of the Fishery Conservation and Management Act of 1976, the United States will not only have political leverage on the Soviet Union as far as grain sales are concerned, but it will also control Soviet access to essential coastal fisheries resources.

Proper management of the U.S. coastal fisheries resources, for domestic utilization or foreign sales, could reduce the negative balance of trade in fisheries. This deficit will otherwise grow from an estimated \$1.2 billion in 1974 to over \$2 billion in 1985 and \$5 billion by 2000.¹⁶⁷

OCEAN MINING

With respect to ocean mining, the Soviet Union is behind the West in both actual production and extraction technology. In 1974, the

¹⁶⁵ See: Carl G. Jacobsen. *The Civilian Fleets, Notes on Military-Civilian Integration in the U.S.S.R.*, p. 119.

¹⁶⁶ U.S. Congress. Senate. Committee on Commerce, National Ocean Policy Study, *The Economic Value of the Oceans*, op. cit., pp. 52 and 53.

¹⁶⁷ Ibid., pp. 49, 56.

Soviet Union produced about 230,000 barrels per day of offshore oil while the United States produced almost 1,400,000 barrels per day.¹⁶⁸ Both countries have good to excellent offshore oil and gas prospects, and both will no doubt succeed in producing more liquid hydrocarbons from the oceans in the years to come.

Gradual exhaustion of on-land oil reserves resulted in the early development of offshore exploration and production technology in the United States. The United States is undoubtedly the world leader in offshore exploration, drilling, and production technology.

The Soviet Union still has vast proved and probable reserves of oil and natural gas on-land. Until recently, it was not hard-pressed to accelerate offshore oil production in view of its ample onshore capacity. Technological and capital limitations on the development of Siberian oil and gas resources, however, together with knowledge of large oil reserves in the Caspian Sea and other offshore areas, led to the development of a plan to complete a series of 10 jack-up drilling rigs by 1980. The first jack-up rig was in the summer of 1976. It capsized and sunk during the second drilling effort in the Caspian Sea.¹⁶⁹ The accident has reportedly resulted in further delay in the second rig in the series while Soviet engineers reassess the log specifications.¹⁷⁰ Soviet planners are aware that they will not be able to double offshore oil production by 1985 unless they import more Western-designed drilling rigs. More advanced semisubmersible rigs (used to drill in deeper waters) have been ordered in the West; a domestically-designed semi-submersible is expected to start work in the Caspian Sea prior to 1980.¹⁷¹

A sophisticated geological survey ship, with dynamic positioning to allow core drilling in 600 meters of water and equipped with a normal rotary drill and vibrating core drilling equipment, has been supplied to the U.S.S.R. by France.¹⁷² Other countries, including the United States, are also selling the Soviet Union advanced drilling rigs and equipment, pipe laying barges, and other offshore oil and gas drilling and production equipment.

The Soviet Union is anxious to develop offshore oil and gas drilling and production technology, not only to develop domestic resources, but to assist developing nations in reducing their dependence on Western technology. It currently lacks the technology necessary for this purpose.

In the area of ocean mining technology, the West is also generally more advanced. Soviet mining technology development, however, is advancing at a rapid pace. The U.S.S.R. is currently exploiting placer deposits (e.g., tin and titanium-bearing sands) and extracting bromine and magnesium from sea water. It does not possess manganese mining technology but is in the process of acquiring such a capability. Even though the Soviet Union is much less dependent on the importation of key industrial minerals than Western industrial nations, it is insistent on developing a major offshore mining capability. Various indicators

¹⁶⁸ Joseph P. Riva, "Soviet Offshore Oil and Gas," p. 353. U.S. Department of the Interior, Geological Survey, *Outer Continental Shelf Statistics, 1953-75*, Washington, D.C., June 1976, p. 89.

¹⁶⁹ *Ocean Oil Weekly Report*, July 5, 1976.

¹⁷⁰ *Ibid.*

¹⁷¹ *Ocean Oil Weekly Report*, June 28, 1976.

¹⁷² Joseph P. Riva, "Soviet Offshore Oil and Gas," op. cit., p. 363.

suggest that it will mount a major thrust toward offshore mining during its 1976-80 5-year plan.¹⁷³

OCEAN SCIENCE AND TECHNOLOGY

Ocean science and engineering are the key to the proper management of ocean resources, the design of advanced ships and equipment for the Navy and merchant marine, waste management, weather forecasting, and other needs.

Marine science is a relatively young field. The United States, for example, entered the Second World War with only about 50 scientists who could properly be called oceanographers; after the war there were 300 oceanographers and numerous experienced technicians. The need for ocean science was recognized in the early war years and it has been strongly supported by the U.S. Navy. Teams of scholars with oceanic knowledge and young graduates in physics, chemistry, biology, geology and engineering have worked together and gained considerable experience. The Soviet Union did not begin to develop a comparable oceanographic capability until the middle 1950's.

In terms of additions to manpower and ship construction, the Soviet Union advanced very rapidly during the 1960's. In 1964, the number of Soviet ocean scientists and technicians was estimated at between 1,500 and 2,000; 10 years later the number was estimate ran at as high as 7,000 to 8,000.¹⁷⁴ The United States had a considerable lead over the Soviet Union in terms of scientific manpower, in the early 1960's. Although comparisons of manpower strength are not entirely accurate (due to different categories of scientists and technologists in the two countries), experts agree that the Soviet Union now has at least as many ocean scientists as the United States and probably a larger number of ocean engineers and technical support staff.¹⁷⁵

With respect to the U.S. and Soviet oceanographic fleet, the overwhelming U.S. superiority in the 1950's and early 1960's has not only vanished but has been reversed. By the end of 1974, the U.S. ocean science community (public and private) had 120 research ships while the Soviet Union had 200.¹⁷⁶ Mark W. Janis and Donald C. F. Daniel estimated that, in 1970, the Soviet oceanic research fleet had a total displacement of 320,000 tons while its American counterpart had a total displacement of only 180,000 tons. One reason for this disparity is the fact that researchers in the United States analyze their data more frequently in laboratories on land and therefore can function with smaller research vessels with limited laboratory space. They spend less time at sea on any one voyage. The Soviet oceanographers prefer to do much of the data analyses on board their oceanographic ships. There are indications the Soviet Union continued to expand its capabilities after the time when U.S. spending for basic oceanic research peaked (1967).

¹⁷³ James E. Mielke, "Soviet Exploitation of Ocean Mineral Resources," p. 372.

¹⁷⁴ U.S. Congress. Senate. Committee on Commerce, National Ocean Policy Study, Soviet Ocean Activities: A Preliminary Study, op. cit., p. 40.

¹⁷⁵ *Ibid.*, p. 40.

¹⁷⁶ *Ibid.*, p. 45.

In overall performance, the United States and the Soviet Union are probably still at par (with the United States may still have a marginal overall edge over the Soviet Union), but the faster growing commitment in funds and manpower for Soviet oceanic research is likely to result in it becoming the leader in oceanography.

The United States leads the world in technology related to the development of non-living ocean resources, such as offshore oil and gas and manganese nodules. The United States has also been a leader in the development of virtually every major advance in cargo ship design, including the containership, the lighter-aboard ship (LASH) barge carrier, the sea barge ship, and the first liquefied natural gas carrier and in the advancement of roll-on/roll-off technology.¹⁷⁷

The Soviet Union, on the other hand, is now equal to, if not ahead of, the United States in many important areas with respect to naval shipbuilding and equipment technology. Admiral Rickover has stated that since 1968:

... the Soviets have introduced over nine new submarine designs, or major modifications in design, besides converting older submarines to improve their capabilities. The Soviets have put to sea improved versions of their attack, cruise missile and ballistic missile nuclear submarines. In the last 8 years, they have put to sea more new design submarines than have ever been put to sea during a comparable period in all of naval history. The United States on the other hand, has produced only two new design submarines during this period. This fact is not surprising since the United States spends less than 20 percent of its naval budget on submarines while the Soviets spend approximately 40 percent.¹⁷⁸

Of the 229 major surface combatants, the Soviets have equipped 33 with antiship cruise missiles. A small number of U.S. surface ships have cruise missiles; the deployment of the U.S. Harpoon cruise missile is not expected to begin until 1977.¹⁷⁹ The development of higher accurate precision-guided munitions, which has been accompanied by a similar revolution in explosive yield-to-weight ratios, has made the generally smaller Soviet surface vessels much more deadly than they were just 10 years ago. The U.S. Navy has recently tested an ocean surveillance satellite, but the Soviet Navy is known to have a more ambitious such program. They have conducted test flights of ocean surveillance satellites since 1967 and are known to have launched 12 such satellites.¹⁸⁰ When perfected and deployed in sufficient quantity, such reconnaissance systems can pinpoint the location of surface ships and targets and can relay this message back to offensive platforms. Application of this technology will make surface ships far more vulnerable to destruction at sea.

Nonmilitary technology in the form of ship designs (roll-on/roll-off, Seabee ships) and systems and offshore oil drilling and production technology, has been transferred on a regular basis to the Soviet Union, either by U.S. companies or by foreign companies under U.S. license. As indicated, much of this nonmilitary technology can be applied to the military effort. Critics of the current U.S. technology transfer policy (or the lack thereof) have called for a complete review of both private and public technology transfers to Communist countries and their client states.

¹⁷⁷ Hearings on Merchant Marine Oversight, part 1, op. cit., p. 383.

¹⁷⁸ Congressional Record, April 8, 1976, p. H3081.

¹⁷⁹ Information received from the Department of Defense.

¹⁸⁰ Information received from Dr. Charles Sheldon, Chief, Science Policy Research Division, Congressional Research Service, July 13, 1976.

LAW OF THE SEA

Ideologically and rhetorically, the Soviet spokesmen in the U.N. law of the sea debate incline toward "the progressive development" of international law.¹⁸¹ The geographical location of the Soviet Union and the fact that it now has a vested interest in the oceans in the form of a strong navy, merchant marine, and oceanographic and fishing fleet requires it to defend the traditional system of ocean order.

The Soviet Union has continued to insist on territorial limits not exceeding 12 nautical miles and free passage through straits used for international navigation. Throughout the preparatory stages of the Third Law of the Sea Conference, it opposed the claims of developing coastal states for a 200-mile economic resource zone. At the Caracas session in 1974, the U.S.S.R. reluctantly agreed to accept the extension of coastal state jurisdiction to 200 nautical miles (or the 500-meter depth curve, whichever was greater), provided a clause would be added allowing third nations to harvest fisheries resources not utilized by the coastal states. Since 90 percent of the Soviet marine harvest is caught off the coasts of foreign countries, Soviet concerns can easily be understood.

The Soviet Union, along with the United States and a number of other maritime nations, opposes the creation of an international organization with exclusive rights over the exploration and development of deep-seabed resources. Earlier support for intergovernmental cooperation through the Intergovernmental Oceanic Commission in Paris gave way gradually to a system allowing both the individual states and a newly created international ocean authority to mine deep-seabed minerals. The Soviet position remains constant on this issue. It insists that the nations share in ocean floor mining and that the Authority not be allowed to control transit rights, fishing rights, or other freedoms of the high seas, other seabed exploitation.¹⁸²

CONCLUSIONS AND IMPLICATIONS

The United States as a maritime power appears to have reached its zenith in the period immediately following the Second World War. The Nation came out of the war with the largest armada of naval and merchant marine vessels ever assembled by any one nation. No nation could challenge U.S. sea control or the Navy's ability to project power overseas. Most U.S. overseas trade was shipped in U.S. flag ships. About 75 percent of the total consumption of fish in the country was harvested by U.S. fishermen. The United States was the first country to produce oil and natural gas from a continental shelf well-endowed with resources. The importance of ocean science and technology for the war effort had sparked a great interest in oceanography, and the United States, with ample government funds available, took an early lead in ocean science and technology.

Today, less than a quarter of a century later, the United States is producing little more fish than in 1950, while fish imports now constitute about 63 percent of domestic fish consumption. More than one-half of the vast coastal fisheries resources of the United States are harvested by foreign fishing vessels.

¹⁸¹ Mark W. Janis, "The Abashed Conservative," p. 142.

¹⁸² *Ibid.*, p. 147.

The U.S. merchant marine has fallen to 9th or 10th place in terms of total tonnage. It now carries only about 5.1 percent of all U.S. overseas trade. With respect to marine science and technology, the United States still leads, but several industrial countries, including the Soviet Union, are rapidly overtaking this U.S. lead after years of considerable expansion of the scientific manpower and physical facilities needed to conduct ocean science at sea.

The once overwhelming naval superiority of the United States has vanished. The Chief of Naval Operations now maintains that, while the United States can still carry out its missions and tasks against the Soviet naval threat, it can do so only on the basis of a very slim margin of success. Other strategic analysis, including the former Chief of Naval Operations, Adm. Elmo Zumwalt, are not convinced that the U.S. Navy could still win a sea-control war against the Soviet Union.

Thus, while U.S. ocean capabilities are still impressive, there is little doubt that the United States has declined, relative to the Soviet Union, as a maritime power.

The dependence of the United States upon the oceans will continue and increase in the future. Foreign trade, once a matter of marginal importance, is now vital to this Nation's well being. Of 27 of the most important raw materials for industrial production, one-third (or 19) come from overseas. Almost 40 percent of the total U.S. oil consumption is imported; its value has tripled since 1972. Within 5 years, oil imports will amount to 50 percent of U.S. consumption. Exports of agricultural and industrial products must balance these growing oil imports. The recent lowering of tariff barriers, and the rise of multinational corporations, will increase international economic interdependence.

If present trends continue, the U.S. merchant marine will carry even less than the 5.1 percent of U.S. foreign trade which it handles now. This trend means more outflow of foreign exchange, loss of potential jobs in the United States, and possible national security problems, from overreliance on foreign merchant ships.

The growing Soviet naval threat must be evaluated in the context of geography and principal alliances. Most of the principal allies of the United States are situated across the oceans. To project American power overseas and to supply American and allied forces abroad with necessary war material, the United States needs a powerful Navy. Many observers fear that the chance of a nuclear holocaust will increase unless the United States can control the seas, if armed conflict between the superpowers breaks out.

The Soviet Union depends on the oceans far less than the United States, with the notable exception of marine fisheries. Its overseas trade is about one-quarter as large. It is self-sufficient in oil and most strategic raw materials. Its industries are not integrated with the industrial countries of the West. If necessary, it could keep its industries going without ever sending a ship outside its coastal waters. All of her principal allies, and two out of three of its potential major adversaries, are situated on the Eurasian land mass. The Soviet Union, in other words, is a typical landpower.

In spite of its geographic position, limited dependence on the oceans, and a much smaller GNP, the Soviet Union has become a major maritime power in the past 25 years.

This achievement is even more impressive when one compares current marine capabilities with those of the late 1940's and early 1950's. The Soviet Union lost heavily during the Second World War. At the end of that war, Russian naval forces were only a fraction of the size of American naval forces. They were generally older, smaller, and less technologically advanced. The U.S.S.R. had only one choice initially: focus on coastal defense and interdiction. The merchant marine was one-twentieth as large and it included about 500,000 deadweight tons of U.S. vessels on loan under land-lease regulations. The fishing fleet was small, unimpressive by any standards, and confined to coastal and inland waters. The Soviet Union had made no notable contributions to marine science and technology; it had neither the manpower nor the physical plant necessary to conduct oceanic research on a large scale.

Today, less than 25 years later, the Soviet Union has largely reversed the situation. Today, it has the most modern distant-water fishing fleet in the world. It should soon surpass Japan as the No. 1 fishing nation in the world. Its merchant marine tonnage is 9th or 10th, and carries about 70 percent of all Soviet trade. U.S. ships carry 5.1 percent of U.S. trade. The Soviet merchant marine has become a truly international merchant marine. It operates in all areas of the globe. Its scientific manpower and physical facilities for oceanic research at sea may be the largest in the world. Its oceanography is first rate. The U.S.S.R. cannot match Western World preeminence in offshore oil and natural gas drilling and production technology, nor can it yet mine manganese nodules from the deep seabed. It is, however, developing technology for deep seabed mining, and its conservative position at the Law of the Sea Conference indicates that it wants that option. The Soviet Union buys offshore oil and gas drilling equipment from the West and is negotiating technology transfer contracts with various Western oil companies.

To protect its interests overseas and to deny sea control to the United States, the Soviet Union has built a supernavy in every sense of the term: Quantity, quality of forces, and operations.¹⁸³

While the statistics are impressive, they do not tell the entire story. Although the administration of the Soviet merchant marine, fishing and oceanographic fleets, nonmilitary, is not subject to the Soviet Navy, all are closely allied with the naval command. They can be readily and directly militarized and mobilized under naval direction. Naval officers regularly serve with the non-naval fleet; all military cargo goes by Soviet-flag vessel; merchant tankers refuel warships as a matter of course; the Ministry of Shipbuilding is responsible for the construction of both naval and merchant marine vessels and configures many merchant marine vessels for ready use as naval auxiliaries; distant water fishing vessels gather information for the Navy; and all oceanic research is ultimately controlled by the Naval Hydrographic Service.

The Soviet Union considers its merchant marine, fishing fleet, oceanographic, and ocean mining capability, as well as its Navy and part of its air force, integral parts of Soviet seapower. For the Soviet Union, each element of seapower must interact with every other such element. No one element can be allowed to develop without regard for the impact that development will have on the other elements.¹⁸⁴

¹⁸³ Polmar, *Soviet Naval Challenge for the 1970's*, op. cit., p. 105.

¹⁸⁴ See: *Ocean Policy Making in the Soviet Union* by Teresa Sulikowski, and: *Chapter on Reorganizing U.S. Ocean Activities* by Herman T. Franssen.

They have done this organizationally by centrally directing and coordinating ocean policy at the highest levels of government and the Communist Party.

The various elements of U.S. seapower, by contrast, do not interact or do not interact sufficiently. The U.S. merchant marine has about the same tonnage as the Soviet merchant fleet but much of it is too specialized to be useful to the Navy in case of conflict. Tankers are not built with a secondary, naval auxiliary function in mind. They could be, according to Adm. Elmo Zumwalt, but there has been too much executive branch dissension to get merchant ships built that way.¹⁸⁵ The scattering of responsibility for ocean affairs among numerous agencies, which apply parochial pressure on Congress, prevents the United States from reaching the total maritime strength of which it is capable.¹⁸⁶

U.S. citizens own a large fleet of merchantmen sailing under foreign flags of convenience, primarily Panamanian and Liberian flags. It is doubtful whether this fleet would be available to the United States in time of war. The ships are primarily manned by foreign officers and sailors who owe no allegiance to the United States. No one knows how these officers and sailors would act if the flag-state nationalized the fleet or what the United States would do in such an event.

Unlike their Soviet counterparts, U.S. merchant marine ships and private oceanographic research vessels do not serve a dual civilian and military role. Without judging desirability, such a dual role clearly enhances Soviet seapower.

The rapid buildup of Soviet seapower raises many questions about Soviet intentions and the implications of Soviet maritime expansion on U.S. national security and on U.S. economic well-being. The following should be considered:

First. The Soviet Union may have developed a navy uniquely designed to interfere with U.S. Navy sea control and power projection missions in the North Atlantic and North Pacific oceans. The Chief of Naval Operations maintains that the Soviet Navy could very well succeed in achieving its sea denial mission in the foreseeable future. Many critics of naval policy argue that the Soviet Union already has the capacity to deny U. S. sea control and power projection in the North Atlantic and North Pacific.

If the Chief of Naval Operations and his critics are right, the U.S. Navy faces, or is about to face, the most serious challenge in its existence. There are no easy solutions. Some experts suggest that a larger balanced Navy is all the Nation needs to meet the Soviet naval threat. Critics, on the other hand, maintain that a different Navy is needed to meet the new challenges. The critics differ among themselves as to the recommended composition of such a new Navy. Advanced technology with respect to ship construction, propulsion systems, deadly guided missiles on small as well as large platforms, orbital surveillance satellites revolutionizing detection of surface ves-

¹⁸⁵ Zumwalt, "High-Low", op. cit., p. 4.

¹⁸⁶ Ibid., p. 4.

sels, and ASW systems in the air or attached to surface ships or the sea floor, have dramatically changed naval warfare. While naval experts may disagree as to the composition of the fleet of the future, all agree on the need to maintain technological superiority.

Second. The Soviet Navy is an instrument for the promotion of world revolution and the extension of Soviet influence in the third world. In a recent article in the *Naval War College Review*, Dr. Uri Ra'an, professor of international politics and chairman of the international security studies program at the Fletcher School of Law and Diplomacy, gave an interesting analysis of the use of the Soviet Navy in project power in third world countries. In contrast to those Western analysts who argue that the recent Soviet naval build-up was still basically an extension of the Defense of the Motherland concept, Professor Ra'an maintains that as early as 1967 there were indications that Soviet naval strategy was moving from a primarily coastal defense strategy to a concept of power projection into the third world, primarily the Middle East and the approaches to the Indian Ocean.¹⁸⁷

The new role of the Soviet Navy in peacetime has been described in recent years in numerous Soviet publications and speeches. In an article in *Morskoy Sbornik* in 1972, which appears to be representative of Soviet thinking on this subject, Admiral of the Soviet Navy S. G. Gorshkov defined that role as follows:

* * * to vividly demonstrate the economic and military power of a country beyond its borders * * * to show readiness for decisive actions, to deter or suppress the intentions of potential enemies, as well as to support friendly states. * * * to surprise probable enemies with the perfection of the equipment being exhibited, to affect their morale, to intimidate them right up to the outbreak of the war, and to suggest to them in advance the hopelessness of fighting. * * * (this) in many cases has permitted the achievement of political goals without resorting to military operations by only threatening to initiate them.¹⁸⁸

This policy of intervention in third world countries, preferably with the assistance of client states (like Cuba), is in line with the Soviet concept of *détente*. It is frequently referred to in the Soviet literature as preventing the export of counterrevolution.¹⁸⁹

According to Professor Ra'an, international conflict between main adversaries . . . merely has to be fought out in slightly different ways and in slightly different arenas; in other words, preferably in the third world rather than in Europe, and, if possible, by paramilitary means, including Soviet logistical aid and the utilization of Communist friends, like the Cubans, the North Vietnamese, and the North Koreans, rather than by direct and overt use of Soviet troops.¹⁹⁰

A growing number of defense analysts tend to agree with Ra'an that in Angola-like conflicts the Soviets may interpose their comba-

¹⁸⁷ Uri Ra'an, "The Soviet View of Navies in Peacetime", *Naval War College Review*, vol. XXIX, No. 260, summer 1976, p. 34.

¹⁸⁸ Quoted from: Uri Ra'an, "The Soviet View of Navies in Peacetime", *op. cit.*, p. 34.

¹⁸⁹ *Ibid.*, p. 35.

See also: Paul H. Nitze, "Assuring Strategic Stability in an Era of *Detente*", *Foreign Affairs*, vol. 54, No. 2, January 1976, pp. 208-210.

¹⁹⁰ *Ibid.*, p. 37

tants, as it did in Angola, between their clients and scoring unilateral gains on land, and potential U.S. counterintervention forces. Because of domestic constraints, the Soviet position will be sufficient to deter the United States from becoming involved. The operational capabilities of the Soviet Navy in its current state are less relevant to these situations than the visibility of the Soviet presence and its implications in terms of power perceptions, vis-a-vis the West and vis-a-vis the third world countries that are concerned.¹⁹¹ The Soviet leadership may have interpreted—as indeed some observers maintain—the U.S. decision not to engage itself more directly in the Angola conflict as an indication that the Soviet naval presence off the Angolan coast deterred the United States from openly supporting the other factions in the Angolan dispute.

The current Soviet trend toward constructing larger surface combatants for the blue-water Navy appears to contradict the views of those who argue that the Soviet Navy is still primarily a coastal defense force. The Soviets claim that the new *Kiev* class aircraft carriers are designed for ASW warfare, but the carriers are also capable of projecting power ashore, particularly in third world countries. Any venture in the third world by Soviet client forces will depend on the swift supply of ammunitions and war material. The current 5-year plan shows that the Soviet Union is planning to construct a large number of roll-on/roll-off and Seabee barge ships, vessels which are uniquely equipped to bring goods ashore in countries which do not have sophisticated port facilities. Seabee vessels, for example, continued to supply the North Vietnamese off the coast of North Vietnam, in spite of the U.S. mining of the Port of Haiphong. Admiral of the Soviet Fleet S. G. Gorshkov recently stated that maritime transportation, fishing, and scientific research on the sea are part of the Soviet Union's naval might.¹⁹²

Third. Soviet ocean activities in the Indian Ocean may continue to grow rapidly. Soviet fishing in the North Atlantic is likely to be curtailed in the future, as a result of management efforts aimed at maintaining a high optimum yield, made possible by unilateral action or multilateral agreement—U.N. Law of the Sea Conference—on extended coastal state jurisdiction over ocean resources. The thrust of the still growing Soviet distant-water marine fishing effort may shift from the North Atlantic to West Africa and the Indian Ocean. The Indian Ocean contains many underutilized resources waiting for exploitation.

The Indian Ocean will grow in strategic importance with the projected doubling of U.S. oil imports from the Middle East over the next 5 years. The Soviet Navy has one major naval base in Somalia, and its presence in the Indian Ocean, particularly in the northern part of the Indian Ocean, is growing fast. By contrast, the British Navy, which once ruled the waves in that part of the world, has left the Indian Ocean. The U.S. Navy is not large enough to perform its missions in the North Atlantic and North Pacific and also to maintain a permanent presence in the Indian Ocean. A Soviet attempt to fill the vacuum the West left behind would be a natural develop-

¹⁹¹ Ibid., p. 36.

¹⁹² Christian Science Monitor, Aug. 19, 1976.

ment, particularly in view of Western dependence on Middle East oil, the Soviet Union's need for Indian Ocean fisheries, and Soviet political interests in East Africa, the Middle East, and South Asia. The growing Soviet naval presence in the Indian Ocean is a cause for concern in view of the importance of Middle East oil and African raw materials for the well-being of the industrial nations of the West.

Fourth. The Soviet civilian fleets support military activities. It has been shown that the Soviet merchant marine, fishing and oceanographic fleets are closely integrated with the Soviet Navy. While the primary function of the merchant marine is to carry overseas trade in Soviet bottoms, it is also uniquely equipped to serve as a naval auxiliary fleet and to supply client states with military equipment and other strategic goods. Prior to the Cuban missile crisis, the Soviet merchant marine had only a very limited capability to support client states. The Soviet Union has successfully penetrated overseas trade routes with rate-cutting practices. Private enterprise in the West can frequently not compete with artificial rates set by Soviet Government steamship companies. By employing such rate-cutting practices the Soviet Union has been particularly successful in gradually replacing the Western presence in third world countries. Soviet merchant marine vessels are also reported to serve important surveillance and monitoring functions for the Soviet Navy, and at times they interfere with U.S. naval communications.

In spite of recent Government financial support for merchant vessel construction, the total volume of U.S. overseas trade carried in U.S.-flag ships has continued to decrease. Some observers now fear that the United States may become too dependent on foreign shipping. Middle Eastern nations are expected to try to control much of the world oil shipments from the Middle East to consumer states. An effective U.S.-flag tanker fleet can divert oil flows from other areas to the United States in case of another embargo. The U.S. Navy is also concerned about the degree of obsolescence of the national defense reserve fleet and the fact that not enough dry cargo merchant vessels are being constructed in the United States to replace the aging reserve fleet.

Fifth. The Soviet distant-water fishing fleet is the largest in the world, but by no means the most efficient.¹⁹³ Like the merchant marine, the Soviet fishing fleet serves a dual purpose. Its primary purpose is economic; to supply Soviet citizens with more animal protein. Its secondary function is to gather intelligence and to show the Soviet flag around the world. Why, one asks, did the Soviet Union develop an expensive distant water fleet rather than concentrate on its own underutilized coastal fisheries—which have been estimated at between 3 and 4 million metric tons.

The United States need not follow the Soviet example and develop a large distant water fleet. Fish is not as vital to the daily animal protein intake of Americans. U.S. fishermen harvest less than one-third of the maximum sustainable yield of all utilized species off U.S. coasts. The recently signed Fishery Conservation and Management Act of 1976 will provide the U.S. fishing industry with the opportunity to significantly increase its total catch, for domestic consumption and for export. Resources that cannot now be fully utilized by the U.S. fishing industry can be divided among foreign nations

¹⁹³ See chapter on the "Soviet Fishing Industry," by Milan Kravanja.

in the form of catch quotas. The new legislation does provide the United States, in principle, with the kind of leverage on the Soviet Union that the United States now has in the area of agricultural exports.

Sixth. Although considerable progress has been made in oceanographic research—especially since World War II—ocean science is still a young discipline. The future of naval strategic and conventional warfare, marine fisheries, ocean mining, surface and undersea transportation, and all other uses of the seas will depend greatly on the progress made in marine science. For several years during the late 1960's and early 1970's, funding for ocean science in the United States barely kept up with inflation. In some years, there was a decline in funding by comparison with the preceding year, in constant dollars. Inflation, the high cost of ship fuel, and access restrictions imposed by a number of foreign countries have put constraints on American ocean scientists, at a time when Soviet oceanography is flourishing. Financial and other constraints on marine science are likely to have an adverse effect on the future of all other ocean activities.

In 1972, the Soviet Union and the United States signed an agreement calling for cooperation in world ocean studies. The agreement is scheduled for renewal in November 1976. Congressional committees are in the process of reviewing the agreement to be sure that the program is of mutual interest to the two countries.

Seventh. The United States leads in most areas of nonmilitary, ocean-related technology, such as offshore oil drilling and production equipment, deep seabed mining technology, and undersea vehicles. Some nonmilitary technology is useful for the military effort; other technology is not. Some technology is transferred from U.S. companies to the Soviet Union; other technology is transferred by way of third countries utilizing U.S. patents.

The transfer of advanced U.S. technology, in the form of ship designs, to Communist countries is a matter of concern. Seabee and other ship design technology were sold to shipyards in Western Europe, which in turn constructed ships based on U.S. technology for the Soviet Union. The U.S.S.R. has been particularly interested in roll-on/roll-off and seabee technology from the West. Both roll-on/roll-off and seabee vessels are most effective for transportation of military equipment.

Offshore drilling rigs and equipment technology has also been sold to the Soviet Union. Access to deep sea drilling technology has been provided to the U.S.S.R. as part of the Joides deep sea drilling program.

While the transfer of marine technology to the Soviet Union has many economic and national security implications that go beyond the scope of this study, the issue deserves to be studied in great detail within the framework of scientific exchanges and foreign trade. To maintain preeminence in ocean science and technology, an aggressive domestic research and development program, coupled with a careful evaluation of cooperative efforts with other nations, may be necessary.

It is of great importance, however, to develop a national ocean policy which will provide academic institutions and industries with some direction as to American priorities with respect to the utilization of the ocean and its resources. Industry is likely to respond in the same way it did to NASA's Apollo project. The immediate benefits from heavy investment in hydrospace science and technology might be more promising than the effects of R. & D. inputs on the commercial utilization of outerspace.

Eighth. The Soviet Union's emergence as a first-rate maritime power within the last two decades is largely the result of recognition, in the highest echelons of the Soviet Government and the Communist Party, of the importance of the oceans for the economic well-being and national security of the Soviet Union. This recognition by the leadership has been translated into a determined and well-coordinated ocean policy. The United States does not now have a national ocean policy. While the United States may learn from certain aspects of Soviet ocean policymaking, few critics of American ocean policy would opt for the Soviet system of central authority. There are, however, several options available to us within our own form of government which will have the effect of strengthening our ocean activities. The American system of checks and balances, of compromises between divergent views, and of cooperation between Government, industry, and academia should be able to meet both the old challenges of harnessing and developing the seas and the new challenge of those who may try to deny the free world access to the oceans and its wealth.

REORGANIZATION OF U.S. OCEAN ACTIVITIES

(By Herman T. Franssen*)

INTRODUCTION

The truly impressive Soviet achievements in both military and civilian ocean activities during the past two decades are primarily the result of clearly defined objectives, and coordination and centralization of the major decisions related to ocean activities at the highest organizational level of the Government and the party.

By contrast, in the United States, Government responsibility over ocean activities is widely scattered and efforts to coordinate marine activities are at too low a level in Government to be truly effective.

In a recent report to NACOA, Senator Lowell P. Weicker, a member of the Senate Commerce Committee's national ocean policy study, summarized U.S. ocean policy as follows:

... the existing Federal oceans program lacks both clearly defined objectives and top-level support. As a result, individual ocean policy decisions made within the existing fragmented Federal structure are uncoordinated, often have directly competing objectives, and clearly fail to maximize the potential of our ocean activities. Lack of strong high-level support for ocean activities within the executive branch virtually guarantees low visibility, low budgets, and less than optimal results . . .¹

Soviet successes should not imply a need for restructuring U.S. ocean policy along Soviet lines. Aside from the basic commitment to a unified ocean policy made at the highest level in Soviet Government and the Communist Party, there is little organizationally worth borrowing from this system.

Soviet oceans policy and administration is formally centralized and unified. In fact, however, the various compound elements operate fairly independently of each other, and often in competition. If the top leadership choose to do so, they could direct a unified administration. This would require party intervention at all levels and might be more costly in loss of technical efficiency than in perceived gains in unified policy. Were U.S. policy unified or even organized at the top, ocean policy guidelines could be established as a basis around which technical consensus could be reached. No need for direct political intervention in each technical sphere would be required. The point is that the American system has the capability for more effective

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¹ Congressional Record, Apr. 13, 1976, p. S5631

coordination and performance. What is needed is some oceans policy apparatus at the top, and further coordination of those scattered civilian ocean activities which logically belong in a single agency or department.

SOVIET POLICY IN THE OCEANS: POSTWAR DEVELOPMENTS

Russia has traditionally been an insular nation, primarily coastal and river-oriented in its marine policy. Russia under the czars was a nation without a major maritime and naval capability. The crushing defeat of the Russian fleet by Japan in the Tsushima Straits is probably the most publicized example of Russia's limited naval capabilities. The country's maritime transportation and fisheries were basically coastal or used foreign bottoms.

This policy began to change under the leadership of Nikita Khrushchev and, under his successor, Leonid Brezhnev, Soviet ocean policy has taken on global dimensions. It is a new phenomenon in Russian and Soviet history which is likely to have far-reaching consequences.

Soviet plans for a global maritime policy appear to be accelerating in scope and scale, comparable, according to some scholars, to British maritime policy following the Napoleonic wars.²

. . . The English global role represented a conscious projection of merchant and naval power in order to extend its imperial power over far-flung geographic regions. The parallel with the global role of the United States after World War II seems less apt as that appeared to be an American preeminence based on the filling of a power vacuum through many areas required by a national desire to ensure stability and foster development. The parallel with England's imperial period suggests a more persistent, conscious extension of Soviet maritime power directed toward attaining political and economic goals than would be the case if the American parallel were chosen. The parallel with the English maritime power suggests a great power rather than a revolutionary thrust to the Soviet global role.³

The shift from a basically insular to a global strategy which led to the rapid expansion of all ocean activities in the Soviet Union, was a deliberate shift, made at the highest level of government. The Soviet leadership of the late 1950's and beyond understood the need for a strong ocean policy. The various facets of ocean policy have been integrated into general Soviet development planning. The leadership considered the legal, political, military, scientific, and economic aspects of the oceans as facets of a single, coherent program.⁴ Growth in every single area of ocean activity in the Soviet Union began at about the same time, the late 1950's and early 1960's. John Hardt states that it is "as if the high level political decision to be a global power was orchestrated with the subordinate policies for extending simultaneously the Soviet maritime, naval, scientific, and political arms of the Soviet Union beyond its continental borders."⁵ But, there is

² U.S. Congress. Senate. Committee on Commerce, National Ocean Policy Study, Soviet Ocean Activities: A Preliminary Survey, op. cit., p. 4.

³ Ibid., p. 4.

⁴ Ibid., p. 4. The theory and formal organization of the party and the Soviet Government provide for and even require unified policy on ocean affairs and on any other major issue.

⁵ Ibid., p. 4.

some evidence indicating that although the major decisions are coordinated and centralized at the highest organizational level, there are conflicts, stresses, and overlap of jurisdiction at the lower level where policy-decisions are executed.⁶ Terese Sulikowski's paper provides some insight into the complexity of the Soviet system, the bureaucratic infighting, the problems of coordinating activities, and the frequency of duplicating efforts.⁷ It is important, however, to understand that despite the shortcomings of the bureaucracy, the Soviet Union made giant leaps ahead in ocean affairs. This occurred primarily because commitments were made at the highest party and government level to turn the Soviet Union into a maritime power second to none. Within the organizational structure for ocean activities, the Navy is dominant and has a strong influence on the maritime industries. Although administered separately, the merchant marine, the fishing fleet, and the oceanographic fleet are closely allied with the naval command in the Soviet Union and may be readily and directly militarized or mobilized under naval direction.⁸

A NATIONAL OCEAN POLICY: HISTORICAL PERSPECTIVE

Prior to the mid-1960's numerous attempts by Government and nongovernment groups to review the status of U.S. marine activities and identify need for changes and recommendations for a national ocean program had been made, but no Government organization was specifically authorized to adopt and implement such recommendations.

A renewed interest in the oceans during the Kennedy administration did not lead to reorganization, but it did result in steps to accelerate marine research by providing additional research vessels, laboratories, and trained manpower. The renewed interest soon led to determined inquiry by the Congress as to structural and conceptual weakness in the executive branch in the area of marine affairs, followed by legislation. The legislation, the Marine Resources and Engineering Act, was signed by President Lyndon B. Johnson, on June 17, 1966. The act expressed congressional conviction that the time had arrived for the country to give serious and systematic attention to our marine environment and to the potential resources of the oceans. The act also expressed a national determination to take the steps necessary to stimulate marine exploration, science, technology, and financial investment on a vastly augmented scale.⁹ Two complementary bodies were established by the act: The National Council on Marine Resources and Engineering Development; and the Commission on Marine Science, Engineering and Resources. The Council, comprised of the heads of the major Federal departments and agencies with marine missions, was charged with the planning and coordination of current marine science programs and with advising and assisting the President. The act had limited the life of the Council to 5 years, and when it discontinued operations in April 1971, its functions were taken over by the Interagency Committee on Marine Science and Engineering (ICMSE).

⁶ See "Ocean Policymaking in the Soviet Union: Bureaucratic Interests and Interaction" p. 211 in this volume.

⁷ Ibid.

⁸ Ibid., p. 5.

⁹ Our Nation and the Sea, A Plan for National Action, Report of the Commission on Marine Science, Engineering and Resources, Washington, D.C., January 1969, p. VI.

THE STRATTON COMMISSION

The Commission on Marine Science, Engineering and Resources, commonly named after the chairman (Julius A. Stratton), the Stratton Commission, was established by the President in January 1967. The 15 members of the Commission were appointed by the President from the ranks of private industry, educational institutions, foundations, and representatives from Federal and State governments. While the Commission was left wholly free of operating responsibility, it was directed to:

Examine the Nation's stake in the development, utilization, and preservation of our marine environment.

Review all current and contemplated marine activities and to assess their adequacy to achieve the national goals set forth in the act.

Formulate—on the basis of its studies and assessment, a comprehensive, long-term, national program for marine affairs designed to meet present and future national needs in the most effective possible manner.

Recommend a plan of Government organization best adopted to indicate the expected costs.¹⁰

The Commission divided itself into seven panels to examine and assess well-defined areas of marine activity: Basic science; marine engineering and technology; marine resources; environmental monitoring and the management of the coastal zone; industry and private investment; international issues; and manpower and training.¹¹ The various panels held hearings, acquired firsthand information related to their assignment by visiting the Nation's marine related institutions, and turned the material collected into a series of reports. Finally, the Commission issued a report, entitled "Our Nation and the Sea" to the President and the Congress in January 1969. The report contained 122 recommendations in the following areas:¹² Marine science, marine technology, manpower development, scientific and technical information, coastal zone management and development, pollution control, living resources, mineral resources, research and exploration, global monitoring and predictions, environmental modification, international agreements, technical and operating services, and organization for the national ocean program.

RECOMMENDATIONS

In its summary of recommendations the Commission made the following statement on the need to restructure Federal ocean activities:

The Commission finds that the present Federal organization cannot meet the changing, broadening aspects of marine affairs. For the most part, the agencies have performed their fragmentary missions well, within the limits of inadequate funding and—too frequently—a lack of strong support from the heads of agencies with primary concerns other than the oceans. . . . A new, strong Federal focus for marine activity is essential to a national ocean effort. The Organization should direct a civil ocean program to

¹⁰ Ibid., p. VI.

¹¹ Ibid., p. VII.

¹² Ibid., pp. 267-278.

the Nation's economic and social needs, conducting the scientific, technological, and management organization and should serve as stimulus, guide, and support for State marine activities and provide a central point in the Federal Government to which industry can look for advice, cooperation, and some kind of support in industrial marine enterprises . . .

The proposed National Oceanic and Atmospheric Agency should report directly to the President and should acquire through transfer those Federal organizations and programs integral to its mission but which do not provide close operational support to the departments and agencies in which they are presently located. . .¹³

The Stratton report came up with a number of recommendations calling for specific action to advance national capabilities in the oceans, and concluded that reorganization was necessary to carry out its recommendations. Marine activities in the United States had grown over the years largely without plan to meet specific situations and problems, and were scattered among too many Federal agencies. The Stratton report did not call for complete consolidation of all ocean activities in one agency, but referred in particular to those marine activities which—in the view of the Stratton Commission—were peripheral to the parent agencies' primary missions. Many of these activities were considered to be too small to have an impact, and their isolation from each other had caused an inevitable degree of insularity that cannot be overcome by coordinating mechanisms.¹⁴

The Stratton Commission concluded that the objective of a national ocean program recommended by the Commission could not be achieved unless a strong civil agency would be created within the Federal Government with adequate authority and resources.¹⁵ The new agency proposed by the Commission, called the National Oceanic and Atmospheric Organization, was to be the principal instrumentality within the Federal Government for administration of the Nation's civil marine and atmospheric programs.¹⁶

THE CREATION OF NOAA

Following the recommendations of the Stratton report, President Richard M. Nixon transmitted to the Congress Reorganization Plan No. 4 on July 9, 1970. It provided for the establishment of a new civilian ocean agency. The principal difference between the President's proposal and the recommendations of the Stratton Commission were that the Commission had recommended that NOAA would become an independent agency and would have included all of the Coast Guard. The President was opposed to creating a new, independent ocean agency, and opted instead for a National Oceanic and Atmospheric Agency as part of the Commerce Department. The Coast Guard was to remain part of the Department of Transportation with the exception of the national data buoy program which would be transferred to the new organization (NOAA). President Nixon

¹³ *Ibid.*, pp. 17, 18.

¹⁴ *Ibid.*, pp. 228, 229.

¹⁵ *Ibid.*, p. 229.

¹⁶ *Ibid.*, p. 230.

proposed to include NOAA in the Commerce Department, because the Environmental Science Services Administration (ESSA), which was already a part of the Commerce Department, would constitute about 70 percent of the dollars and 80 percent of the personnel of NOAA.¹⁷

The following organizations were transferred to NOAA, following its establishment on October 3, 1970:

- Environmental Science Services Administration (Commerce)
- Bureau of Commercial Fisheries, Marine Game Fish Research Program, and Marine Minerals Technology Center (Interior)
- National Oceanographic Data Center and National Oceanographic Instrumentation Center (Navy)
- National Buoy Program (Coast Guard)
- National Sea Grant Program (NSF)
- Elements of the U.S. Lake Survey (Corps of Engineers)

The mission of NOAA is:¹⁸

- Explore, map, and chart the global ocean and its living resources;
- Manage, use, and conserve those resources;
- Describe, monitor, and predict conditions in the atmosphere, ocean, Sun, and space environment;
- Issue warnings against impending destructive natural events;
- Develop beneficial methods of environmental modification; and
- Assess the consequences of inadvertent environmental modification over a period of time.

THE CREATION OF NACOA

The Stratton Commission also recommended the establishment of a committee to (1) advise the head of NOAA in carrying out his functions and coordinating responsibilities, and (2) report to the President and Congress on the progress of Government and private programs in achieving the objectives of the national programs. The committee was to be composed of individuals drawn from outside the Federal Government and broadly representative of the Nation's marine and atmospheric interests.¹⁹ Following the advice of the Stratton Commission, Congress established the National Advisory Committee on Oceans and Atmosphere (NACOA) by Public Law 92-125, on August 16, 1971. NACOA is composed of 25 members, drawn from State and local government, industry, science, and other non-Federal areas. Its responsibilities include a continuing review of the progress of the marine and atmospheric science and service programs of the United States, and advising the Secretary of Commerce with respect to carrying out the purposes of NOAA. NACOA is required to submit a comprehensive annual report to the President and to Congress setting forth an overall assessment of these matters.

¹⁷ U.S. General Accounting Office. "The Need for a National Ocean Program and Plan." Washington, 1975, p. 9.

¹⁸ Ibid., p. 9.

¹⁹ Our Nation and the Sea, op. cit., p. 245.

THE MARINE COUNCIL 1966-71

The Marine Resources and Engineering Development Act of 1966 vested continuing responsibility in the President for planning and coordinating Federal marine activities and reporting annually to the Congress on their progress and proposed budgets for the coming year. To assist the President in these tasks, the act created the National Council on Marine Resources and Engineering Development. The task of the Council was to provide coordination and direction to the fragmented Federal marine activities. Dr. Edward Wenk, Jr., the Executive Secretary of the Council said about the task of the Council:

. . . In helping the President steer marine affairs, the challenge was to bring together a wide range of diffuse public purposes, specialized bodies of knowledge, institutions, and Federal agencies, and to transform them from a fragmented, unsteady, and loosely knit caboodle into a broadly based, coherent, system sparked by a sense of urgency.²⁰

From the start the Executive Secretary was well aware of the difficulties surrounding any effort to coordinate activities of 11 Federal agencies and prevent them from sailing in different directions.

The Council emphasized the need to apply knowledge of the oceans to public purposes. Five committees were established within the Council to consider the full range of needs and to try to formulate programs for the various areas of priorities that had been selected.

The underlying philosophy of the Council was pragmatic. It called for strengthening the economy by identifying marine resources; strengthening marine technology; enlarging U.S. maritime enterprises; enhancing the quality of urban living by coastal awareness; strengthening world security; and fostering the education of specialists.

The Council proved effective for several reasons. First, its close proximity to the President clearly fostered agency cooperation (none wanted to risk Presidential displeasure). Easier access to key Presidential aides facilitated the defense of marine programs during budget preparation. The fact that the Council was close to the President stimulated awareness of the significance of the oceans. Second, Wenk gives much of the credit for the successes of the Council to Vice President Hubert H. Humphrey. Mr. Humphrey became very interested in ocean affairs. According to Dr. Wenk, attendance by Council members or their alternates at high policy level was excellent because of Mr. Humphrey's enthusiasm and drive. The Vice President also succeeded in having almost all Council recommendations accepted by the President.²¹ Testifying before the Senate Oceans and Atmospheric Subcommittee on March 23, 1976, Senator Humphrey summarized the tasks and accomplishments of the Council as follows:

. . . it identified unmet national needs; (and) it identified new opportunities to direct Federal marine science and technology to meet these needs.

It recommended priorities; it identified impediments to progress within the executive branch and strategies for circumventing red-tape. It developed new policies and made on behalf of the

²⁰ Wenk, Edward, Jr. *The Politics of the Ocean*. Seattle, University of Washington Press, 1973, p. 95.

²¹ *Ibid.*, p. 117.

President clear assignments to implementing agencies. In those cases where the programs needed the collaborative effort of several, especially where the basic statutory missions overlapped, the Council recommended one agency assume a lead responsibility.

It insured that appropriate resources of the Federal Government were brought to bear upon Presidentially enunciated goals.

With the help of outside advisers, it evaluated Federal programs so as to eliminate marginal activities and in the inevitable competition for funds, made choices as to the more important.

It developed background studies that would bring together not just the scientific and engineering components of marine affairs but also legal, economic, social, and even political considerations which are essential parts of the public process.

And, last but by no means least, the Council took initiatives to develop programs to strengthen world understanding and security through international cooperative marine endeavors—to deal with the oceans as a community of nations rather than a form of parochial territorialism.

In looking back over that interval (1966–69), I think it is fair to say that that new national policy and its activist implementation bore considerable fruit. In his state of the Union message, in special messages to the Congress, in statements, speeches and appropriation actions, the President employed the potential of the sea to meet national needs on 65 separate occasions.²²

With the change of administration came a decline in influence of the Council in policymaking. The new Vice President accorded a different priority to ocean affairs than his predecessor. The former high-level meetings gave way to a lower level Committee for Policy Review. Technically speaking, the lower level bureaucrats were better equipped to make proposals to the Council, but they were in no position to commit their agencies, nor would their collective advocacy bear the same weight as a consensus of Cabinet members.²³ Interest in a comprehensive ocean policy was at a low point during the Nixon administration. The Council was allowed to die quietly in 1971, when the President followed a Bureau of the Budget recommendation requesting that the Council not be extended beyond its planned 1971 deadline. In the last 18 months of its existence the Council met only once (compared with a total of 12 meetings during the previous 3½ years).

OCEAN POLICY: THE CURRENT SITUATION

The United States today finds itself in a situation of relative—and in some areas absolute—decline as a maritime power. Reorganization of civilian ocean-related activities in the Government are of great importance for better coordination of ocean activities, but reorganization by itself is not likely to bring about major changes in U.S. ocean policy. What is needed also is creative leadership and a commitment at the highest level of Government to examine the relationships

²² Statement by Senator Hubert H. Humphrey before the U.S. Senate Committee on Commerce, Oceans and Atmosphere Subcommittee, Mar. 23, 1976, pp. 6, 7.

²³ Wenk, *op. cit.*, p. 162.

of the oceans to our national interests at a time when the United States is faced with a whole set of different developments in the oceans. Describing the importance of Presidential action, Wenk writes:

. . . Translated into political terms, the question of how important the oceans are to the Nation can be directly measured by how important the President believes they are. Of all the officers of Government, the President has by far the greatest power to define the Nation's major political goals, to synthesize divergent interests into a public interest, and to develop strategies and tactics to accomplish his programs. He is the manager of the bureaucracy, obliged to enforce a coherent unity to the fractured internal machinery that endeavors to respond to signals from clientele they serve, and to resolve disputes; and he seeks new authority when existing powers of the Executive are inadequate to fulfill the agreed-upon goals.²⁴

Under the Johnson administration, the President delegated the chairmanship of the Marine Council to Vice President Humphrey, whose enthusiasm for marine affairs turned the Council into a very successful instrument of marine policy. Wenk writes that even the creation of a Marine Council does not guarantee success all by itself. A President can completely neglect the Council, or turn it into a token organization with expectations that it will provide a staff arm to the Chairman. But, a third alternative is full implementation in spirit as well as in substance.²⁵ Hence, whenever a considerable interest in marine affairs exists in the highest circles of the executive branch, a Marine Council could be a very successful instrument of ocean policy planning and coordination.

The results of the dismantling of the Council in 1971 had two major effects, according to Senator Humphrey: (1) opportunities have been lost to present governmentwide policy options directly to the President; and (2) lacking that central, politically powerful and potentially creative leadership, the marine programs of so many different agencies that respond to diverse outside clientele have lost their sense of community and their activities are now shattered by family quarrels.²⁶

CONGRESSIONAL INITIATIVES

The passage of the 1966 Marine Resources and Engineering Development Act was probably the single most important postwar governmental development in marine affairs. It resulted in the restructuring of Federal ocean activities (creation of NOAA in 1971) and the establishment of the Council on Marine Resources and Engineering Development in the White House. The new marine affairs legislation which afforded a mandate to associate the seas with U.S. national interests was initiated by the U.S. Congress.²⁷ However, many in the ocean community maintain that the NOAA created by President Nixon did not go far enough in reorganizing civilian ocean activities. Moreover, it was felt by many that the fact that the Marine Council

²⁴ Wenk, *op. cit.*, p. 149.

²⁵ *Ibid.*, p. 98.

²⁶ Statement by Senator Hubert H. Humphrey, *op. cit.*, p. 8.

²⁷ Wenk, *op. cit.*, p. 95.

was allowed to fade away during the Nixon administration did great damage to ocean affairs in the United States. National interest in the oceans declined rapidly after 1969, in spite of the fact that world-wide interests in the oceans reached new heights during the initial phases of the United Nations Law of the Sea preparatory conferences. The conferences again focused our attention on the world's dwindling fisheries resources, the growing threat of marine pollution, the potential wealth of the deep seabed, the implications of oil and gas developments, and the possible interference with navigation following acceptance of extension of coastal jurisdiction.

In 1974 Congress took an organizational initiative to develop the Nation's future ocean policy. On December 19, 1973, 70 Senators cosponsored a resolution authorizing a National Ocean Policy Study. The resolution, Senate Resolution 222, passed the Senate in February 1974. Recognizing that the Marine Resources and Engineering Development Act of 1966 was enacted to develop a comprehensive, long-range national ocean policy, the resolution indicated that the act has been neither fully implemented nor completely successful in achieving that goal. For this and other reasons related to the utilization of ocean resources, solutions to ocean-related problems dependent on developing ocean science and technology, resolution of conflicts of national and international jurisdiction over the oceans, and protection of the quality of the marine environment, the Senate authorized the Committee on Commerce to make a full and complete study of national ocean policy.

The purpose of the National Ocean Policy Study is:

- To determine the adequacy of current Federal programs related to the oceans and to recommend improvements in agency structure and effectiveness to meet national needs and achieve ocean capabilities;

- To assess existing policies and laws affecting the oceans for the purpose of determining what changes might be necessary to assure a strong and internationally competitive ocean policy and program for the United States;

- To evaluate current and prospective capabilities in the oceans, and to evaluate if capabilities are consistent with the attainment of long-range national goals;

- To achieve policies geared toward full utilization, conservation, management and rehabilitation of living resources;

- To assess policies for mineral utilization;

- To encourage implementation of the Coastal Zone Management Act of 1972;

- To assess international legal ocean issues; and

- To establish a comprehensive national policy for the purpose of understanding and protecting the global ocean environment through education, exploration, research, and international cooperation.

To date, the Senate National Ocean Policy Study has held hearings on coastal zone management, Outer Continental Shelf oil and natural gas developments, ocean pollution, and on the Law of the Sea. Six studies on coastal zone management and on Outer Continental Shelf oil and gas developments have been published by the National Ocean

Policy Study, as well as a number of other studies related to national and international aspects of ocean policy. Among the latter are a study on the Third Law of the Sea Conference, on Soviet Activities in the Oceans, on the Economic Value of Ocean Resources to the United States, a study on ocean pollution, and staff reports.

Following the studies on Outer Continental Shelf development and coastal zone management in the United States, the Senate introduced S. 521, amendments to the Outer Continental Lands Act, and S. 586, amendments to the Coastal Zone Management Act.

With the establishment of the National Ocean Policy Study and its commitment to review the adequacy of the current organization of Federal ocean programs and their effectiveness to meet national needs, Congress has once again taken the initiative to study the need for reorganization of Federal ocean activities and to take legislative action to strengthen U.S. ocean policy.

WHERE DO WE STAND NOW?

NOAA is clearly the Federal lead agency for ocean affairs, but the lack of an inclusive and definitive policy statement to guide NOAA and shape its evolution, together with the increasingly rapid growth of many uses of the oceans, has led to continued fragmentation of important ocean functions. There are still many other agencies with jurisdiction over ocean affairs.²⁸

1. The Maritime Administration (MARAD) administers subsidy programs for American shipbuilders in order to offset the disparity between domestic and foreign shipbuilding costs. MARAD, which is also involved in R. & D., is part of the Commerce Department.

2. The Coast Guard (Department of Transportation) is charged with preservation of safety of life and property at sea, and enforcement of maritime laws and treaties (especially marine pollution and fisheries).

3. The U.S. Geological Survey (USGS) is charged with mineral resources assessment. As most future large oil provinces are expected to be found in offshore areas, USGS's role in the oceans has greatly expanded. It has become the repository of a greatly increased set of responsibilities for evaluation, regulatory, and advisory functions on the OCS, with a significant role in directing the resource development activities there. The Survey is part of the Interior Department. Its tasks are:

(a) gathering of geological and geophysical information needed to evaluate the tracts to be leased;

(b) collecting and evaluating critical environmental baseline data in areas scheduled for accelerated leasing. As much of this

²⁸ Ash Council Recommendations Relating to Oceans Programs.

Soon after the establishment of NOAA, a proposal for further consolidation of ocean programs in the executive branch was transmitted to Congress by the Nixon Administration. The plan, submitted to Congress on Mar. 25, 1971 was designed to consolidate the programs of seven Cabinet departments into four new departments. It included a Department of Natural Resources containing five major administrations. One of these would be the Oceanic, Atmospheric and Earth Sciences Administration, which was to consist of NOAA and the Geological Survey (currently part of the Department of the Interior). The purpose of the proposed consolidation was to create an administration with exclusive research, monitoring, surveying and data collection functions. The Ash Council also argued that there was no compelling logic to locate NOAA in any specific department, because its services were so widely used. The Council suggested, however, that both would fit very well in the proposed Department of Natural Resources. The reorganization efforts have not received much attention in recent years.

research involves basic marine science, critics believe that NOAA should manage the baseline studies; and

(c) various regulatory duties during all developmental stages. It overlaps NOAA operations in mapping, surveying and preparing charts of geologic and ocean terrain characteristics.

4. The Bureau of Land Management has basic responsibility within the Interior Department for selecting and issuing leases for mineral rights on Federal lands (OCS). Hence, it has substantial responsibility for the growing use of OCS. The Bureau carries out ocean-related functions, such as conducting environmental impact statements, environmental baseline studies and assessments for mineral leasing programs in the OCS.

5. In U.S. Fish and Wildlife Service (Interior), the lines of division are blurred, because some species—anadromous species—spend part of their lifecycle in inland waters (Interior jurisdiction) and part in the ocean (NOAA jurisdiction).

6. The National Park Service (Interior) spent about 10 percent of the 1975 budget on management of national parks, monuments, national lakeshore and seashore areas that are marine or coastal-zone related.

7. The Army Corps of Engineers (Department of Defense) has general responsibility for maintaining the navigability of the Nation's inland and coastal waterways. Its work interfaces with OCS oil and gas developments, waste dumping, and numerous other activities affecting the coastal zone.

8. The Department of State formulates negotiation and implementation of foreign policy dealing with oceans (fisheries, science, mining, Law of the Sea, etc.).

9. The National Science Foundation is a leading Federal agency in ocean science affairs. About 8 percent of the 1975 NSF budget was spent on ocean related activities. NSF, mainly through grants to private and some public institutions, carries on extensive support for oceanic studies.

10. The Environmental Protection Agency has responsibility for control of pollution in the oceans. It is the lead agency in regulating the dumping of wastes, oil, and hazardous substances in the Nation's coastal waters. It promulgates guidelines for determining the effects of pollutants on water quality, marine life, beaches, and other ocean values.

11. The Council on Environmental Quality (CEQ) analyzes conditions and trends in the quality of the environment, conducts investigations relating to the ocean environment, appraises the effects of Federal programs on environmental quality, recommends policies on these matters, and submits an annual report on these matters. (Heavily involved in OCS related activities.)

12. The Energy Research and Development Agency (ERDA) has responsibility over marine research, aimed mainly at determining effects and movements of radioactive elements in the ocean environment and effects of waste heat on the ocean environment. Problems of power plant siting have also been one of the Atomic Energy Commission's (AEC) functions, now taken over by ERDA.

13. The National Aeronautics and Space Administration (NASA) is responsible for support systems in ocean data gathering, monitoring, and observation (remote sensing techniques).

14. In the Department of Health, Education, and Welfare (HEW), the Food and Drug Administration and the National Institutes of Health are in a minor way involved in ocean related activities.

The consolidation of ocean programs in NOAA following its establishment in October 1970 did not go far enough according to most qualified observers. Not only are 11 departments and agencies involved in marine science and oceanic affairs, but according to a recent GAO study there is a great deal of overlapping research effort.²⁹ For example, the study found that in 114 of the 180 Federal programs, more than 1 department or agency was performing work in similar areas.³⁰ The GAO study gives a number of illustrations of departmental overlap in research activities. It lists 7 departments and agencies administering 15 programs relating to the study of the geological structure and composition of the ocean floor; 6 departments and agencies investigate the biological aspects of marine organisms under 14 programs; 5 departments and agencies develop, test, and evaluate oceanographic instruments under at least 13 programs; and 5 departments and agencies conduct at least 9 programs which study the effects of pollutants on marine ecosystems.³¹ And these are just the few areas investigated in some detail by the GAO.

NACOA, in its second report to the President and Congress (June 29, 1973) stated:

There are too many actors, too many separate chains of command, too many crosscutting policies, too many separate budgets, appropriations, and programs. In this confusion, national priorities have no perspective and neither the executive branch nor the Congress is in a position to lead effectively, much less enforce accountability for results.³²

Some observers have maintained that existing interagency coordination of Federal marine activities are sufficient to see to it that Federal resources are used effectively and efficiently and that the proper priorities are selected. On the other hand, many who have had the experience of working with interagency committees are less optimistic about their usefulness.

The impotency of interagency coordination schemes has been commented on by several notables in a colorful way. Harold Seidman has observed that "interagency committees as a general institutional class have no admirers and few defenders."³³ The point was made by Secretary of Defense Robert Lovett that the coordinating committees have blanketed the whole executive branch so as to give "an embalmed atmosphere," composed of "some rather lonely, melancholy men who have been assigned a responsibility but have not the authority to make decisions at their levels, and so they tend to seek their own kind. They thereupon coagulate into a sort of glutinous mass. . . ."³⁴ Seidman further quoted W. Averell Harriman as condemning committees "as organs of 'bureaucratic espionage' employed by agencies to obtain information about the plans of other departments which

²⁹ U.S. General Accounting Office. *The Need for a National Ocean Program and Plan*, op. cit., p. 17.

³⁰ *Ibid.*, p. 17.

³¹ *Ibid.*, pp. 17-22.

³² *Ibid.*, p. 27.

³³ Seidman, Harold. *Politics, Position, and Power*, 1970, p. 11.

³⁴ *Ibid.*, p. 11.

could be used to 'obstruct programs which did not meet their own departmental bureaucratic objectives.'"³⁵

In ocean-related activities interagency coordination has historically been sought through loosely knit interagency advisory committees or high level review-councils. In 1960 the Interagency Committee on Oceanography (ICO) was formed to coordinate the 15 agencies that were then engaged in oceanographic research.³⁶ The ICO was replaced by the National Council on Marine Resources and Engineering in 1966, a Cabinet-level panel which was chaired by the Vice-President.

In terms of effectiveness, there is little doubt that the National Council on Marine Resources and Engineering was the most influential of all the interagency coordinating instrumentalities. There were several reasons for this: (1) the Council had a direct legislative mandate; (2) members were cabinet rank officers with authority and responsibility for setting policy; (3) the Chairman was the Vice President of the United States; and (4) in a more normative sense, the first Chairman, Hubert H. Humphrey, was an ex-Senator who understood and had an excellent working relationship with the Congress. The Council's success must also be partially attributed to the power it derived from its position in the establishment.³⁷

When the Marine Council was terminated as provided by the enabling legislation on April 30, 1971, it was replaced by the Interagency Committee on Marine Science and Engineering (ICMSE) which was established by the Federal Council for Science and Technology. ICMSE is a nonstatutory executive coordinating committee composed of 13 members from the subcabinet (assistant and deputy assistant secretary) levels of departments or agencies, including the Smithsonian Institution, which are involved in ocean-related activities. The committee is presently chaired by the Administrator of the National Oceanic and Atmospheric Administration.

ICMSE's charter provides limited authority from the President to: (1) ensure planning and coordination of Federal activities in marine sciences and engineering and related matters; (2) identify the need for and foster appropriate studies or investigations; and (3) annually review the Federal marine science and engineering program and budget.³⁸ ICMSE has no specific authority to establish policies or to set priorities; it is solely advisory. Members of ICMSE convene bimonthly to review major programs and exchange information. The agenda is formed by requests generated from the Executive or Congress. The Senate National Ocean Policy Study has actively used ICMSE as a vehicle for reviewing the status of ocean data resources, the state-of-the-art of ocean instrumentation and a survey of Federal agency research programs in the Great Lakes. The committee has a number of functional subcommittees which deal with limited interagency problem-solving in the areas of the Chesapeake Bay, coastal

³⁵ *Ibid.*, p. 11.

³⁶ The ICO was actually a spinoff from the Subcommittee on Oceanography formed within the now defunct Federal Council for Science and Technology created by Executive Order No. 10807, on Mar. 13, 1959.

³⁷ For a comprehensive analysis of the functions and operation of the National Council on Marine Resources and Engineering based on firsthand knowledge, see: Wenk, Jr., Edward, *The Politics of the Ocean*. Seattle, University of Washington Press, 1972, cited earlier.

³⁸ U.S. General Accounting Office. *The Need for a National Ocean Program and Plan*, op. cit., p. 24.

zone management, marine pollution, mapping, and charting the oceans, and vessels.

The GAO study found that ICMSE has had a limited success. It has provided a sounding board for member departments to exchange information and focus attention on problems in the areas of marine science activities and ocean affairs, but ICMSE is very limited in its ability to insure that Federal resources are used effectively and efficiently. The prime task of the participating agencies is to be responsive to their own missions, which does not always guarantee that resources are used in the most efficient and effective way. Moreover, the Interagency Committee does not have the authority to determine which programs should be undertaken, what priorities should be established, which agencies should be involved, and what the amount of resources should be allocated.³⁹

The results have been less than satisfactory. Studies coming out of ICMSE either did not have any specific recommendations to the agencies, or had only recommendations of a general nature calling for either continuous monitoring of the areas by ICMSE or for consideration or action by the Federal Council for Science and Technology or the Office of Management and Budget.⁴⁰

In its Second Annual Report to the President and Congress, NACOA basically said the same about ICMSE's limited function as an information exchange committee, not capable of doing much more. NACOA maintained that this is not sufficient, and will in the end lead to protection of agency interests within the overall program:

Coordination usually means exchange of information. Rarely does it involve table-pounding establishment of priorities, guidelines, and new policies to meet new problems. Especially when budgets get tight, coordination is not by itself tough enough to protect multiagency programs. What happens is not so much that things get left out, though that happens, but that programs get distorted. Program cutbacks in one agency have side effects on others which change the overall program balance and priority without anyone really being responsible for what happened.⁴¹

In reality, there are practical limits on Presidential ability to foster coordination, and the congressional role is even narrower. On a day-to-day operational level the program managers, middle management, and division chiefs determine the course of ocean policy in a more pervasive manner than coordinating committees or blue ribbon advisory councils. The bureaucratic reward structure tends to be internal: little credit is given for advancement as a result of attaining common goals outside the immediate organization.

In summary, ICMSE is not capable of providing direction to the fragmented Federal marine activities; even its coordinative capabilities are thin. ICMSE is but the tip of the iceberg of interagency coordination. NOAA alone is a member or sponsoring member of over 29

³⁹ Ibid., p. 24.

⁴⁰ Ibid., p. 24.

⁴¹ NACOA, A Report to the President and the Congress, Second Annual Report, Washington, June 29, 1973, p. 8.

lesser interagency coordinating committees which deal with specific ocean issues, including the National Oceanographic Data Center Interagency Committee and the Committee on International Ocean Affairs.

The GAO report identified about 50 special-purpose and multipurpose Federal interagency committees in addition to ICMSE. They have been established to consider various aspects of marine science activities and oceanic affairs. Some of the committees report to one department or agency or to the White House, and the others report to two or more departments and agencies.⁴²

Like ICMSE, none of the 50 special-purpose or multipurpose Federal interagency committees was found to provide effective coordination and direction to the fragmented Federal marine activities.

NEEDED: REORGANIZATION OF OCEAN ACTIVITIES

Efforts to further improve interagency coordination committees consisting of high ranking sub-Cabinet level officers of all departments and agencies with ocean activities is not likely to lead to centrally directed and coordinated overall ocean policy. The reasons we have seen are deeply rooted in the interagency committee system itself. Rather than continue unsuccessful efforts toward marginally improving the current organizational structure, NACOA over the past few years has favored amalgamation of the major functions having to do with civilian marine and atmospheric resources, regulation, and related environmental research and services into a newly structured administration within a single department or agency.

In its 1974 report to the President and Congress, NACOA called for the establishment of an independent Marine and Atmospheric Agency. Such an Agency would bring together the function of NOAA; the marine related functions of the Geological Survey; the marine and coastal portion of the civil planning, policy, and funding activities of the Corps of Engineers; the submerged lands management and mineral leasing program on the Outer Continental Shelf presently assigned to the Bureau of Land Management of the Department of the Interior; marine-related functions of Interior's Bureau of Sports Fisheries and Wildlife; and finally, the U.S. Coast Guard.⁴³

NACOA also suggested a functional approach to reorganization of civilian marine affairs. The three broad functions, research, regulation, and resource management, are brought together in one agency, because it is general experience that each would tend to go its own way unless there is a capstone, some longer view that sees to the following:

That regulation is sensitive not only to the larger need of the public good, but to practical conditions in which it must operate;

That regulation can call on research to illuminate the dark corners of its field of work;

That resource management is made more efficient and productive by making sure the technical standards of regulation, and

⁴² U.S. General Accounting Office. *The Need for a National Ocean Program and Plan*, op. cit., p. 28.

⁴³ National Advisory Committee on Oceans and Atmosphere. *A Report to the President and the Congress*, third annual report, June 28, 1974, p. 18.

the practicalities of enforcement, are consistent with the real world;

That the potentialities of the future and the difficulties of the present are worked at by an associate research arm; and

That research can find its balance in the operation of its sister divisions.⁴⁴

For the Nation's good, marine resource development, marine resource regulation, and marine resource research must be provided an organizational setting that enhances their marine orientation and relates them in a way which keeps them mutually supportive without being subordinated to each other. Care will have to be taken to accomplish this without disrupting the performance of these functions in their traditional land-oriented context. We believe that the urgency of meeting long-neglected marine needs justifies the attempt.⁴⁵

The NACOA report concluded that the reason for suggesting an integrated tripartite arrangement of resource management, regulation, and research is that none can survive and work healthily without contact with the other two, and none could work in the full public interest were any of them subordinated to the others.⁴⁶

NACOA maintains that the failure to recognize this is in part responsible for as number of imbalances in the present Federal program. For example, there is a commercial fisheries program in the Government that is strong in science and advisory services but weak in national fisheries development strategy; and an ocean engineering industry which during the 1960's developed, with Government encouragement, extensive underwater technology under the mistaken impression that Government was going to expand its support of marine resource development.⁴⁷

Bringing most of the civilian ocean activities and the Coast Guard into one independent agency organized along the functional lines proposed by NACOA would remove many of those obstacles. In addition, an independent agency would be equipped to focus on its mission without conflict with other interests of a parent agency or department. It would facilitate funding of programs which are now components of other departments, which are not primarily ocean-oriented, programs consequently more vulnerable to budget cuts when budget cuts are in order. An independent agency is more flexible than an agency tied to a department. It can formulate its needs and programs without the necessity to accommodate the policy conflicts it is likely to encounter in a larger agency. It is more visible in the public eye, thereby creating a more active constituency of interested and knowledgeable persons. Finally, it will be able to organize directly in response to the needs of the ocean. The Stratton report in 1969 fully supported the concept of an independent agency for the oceans, and foresaw the following benefits:

Especially getting a major diverse effort underway, the case for independent status is compelling. An independent agency can

⁴⁴ Ibid., pp. 18, 19.

⁴⁵ Ibid., p. 13.

⁴⁶ Ibid., p. 19.

⁴⁷ Ibid., p. 11.

bring a freshness of outlook and freedom of action difficult to achieve in an existing department. Its greater public visibility would draw stronger public interest and support. The head of an independent agency would be better able to organize the agency's activities to achieve the multiple purposes of a national ocean program than would an officer of a larger organization in which other interests are represented and perhaps dominant. He also would be favorably positioned to assist the President in the coordination of those technical and operational activities of other Federal agencies which relate directly to the marine mission. Furthermore no existing department now has sufficiently broad responsibilities to embrace the full scope of functions proposed for NOAA or to accommodate all of the organizations which the Commission believes should be brought into the new agency.⁴⁸

The rationale for reorganizing ocean activities along the functional lines suggested by NACOA becomes clear when surveying the functions of the various Federal agencies with responsibilities in the oceans.

In the area of research and data collection, NOAA is clearly the lead agency. It shares surveying functions with the U.S. Geological Survey and to some extent with the Coast Guard, the Corps of Engineers, and NASA (from the support point of view). NOAA and the National Science Foundation share the leading role in ocean research.

In the area of development and management of living resources, NOAA shares general management responsibilities with the Department of the Interior (Fish and Wildlife Service). Development and management of nonliving resources is shared with the Bureau of Land Management and the U.S. Geological Survey. While NOAA (within the Federal Government) has general management responsibilities for the Coastal Zone, it shares responsibility with the Corps of Engineers, the National Park Service, the Bureau of Outdoor Recreation, and the Coast Guard. Management of navigation is primarily the task of the Coast Guard, with some responsibilities exercised by the Corps of Engineers. NOAA serves only as the supplier of scientific and chart information in support of navigation.

In general, there is no lead agency. Although national policy in these areas is evolving rapidly, there is no ocean-oriented agency to carry them out; instead, the management of nonliving resources of the oceans has revolved around the major land management agencies serving this function on the continental areas of the United States.

There are a wide variety of Federal agencies with regulatory activities in the oceans. NOAA has no really significant regulatory functions for either living or nonliving resources. The Coast Guard enforces fisheries agreements; EPA is the main regulator of pollutants in the ocean; the USGS has the main postlease regulatory responsibility with respect to drilling and producing oil and gas from the Continental Shelf; the Corps of Engineers and the Coast Guard have ancillary permit authorities related to these functions; the Nuclear Regulatory Agency and the Coast Guard have regulatory roles related to nuclear powered submarines and off-shore nuclear power plants; and the Corps of Engineers has permit authority in dumping of dredged materials in coastal waters.

⁴⁸ Our Nation and the Sea, op. cit., pp. 232-233.

NOAA's only lead role is in traditional science and information gathering; it plays a rather negligible role in other areas of concern in the oceans.

At the time when NOAA was formed the emphasis was still on the need for scientific knowledge. Now, with pressures for the exploitation of living and nonliving resources mounting, the need for regulation has become apparent. For example, Congress has passed and the President has signed the Fisheries and Conservation Act of 1976, but no agency in the Federal Government has comprehensive responsibilities past 3 miles. This means that we have currently no agency equipped to regulate competing uses of the oceans or to manage the developmental efforts aimed at maximizing ocean yields. The result has been to place regulatory and management functions in several different agencies, fragmenting policy considerations and Federal efforts to bring about a comprehensive ocean policy. Hence, such is the basis of proposals for a new organization with a well-defined mission and with strong enforcement capability, aimed at optimizing yield of ocean resources and careful management of the ocean environment.

Even if reorganization of marine affairs now dispersed among several Government departments and agencies were to take place, some marine responsibilities would still remain outside the newly created agency (or department). The Department of Defense (Navy), State Department, the National Science Foundation and possibly the marine-related activities of EPA would still remain independent, implying the need for interagency coordination along the lines of a Marine Council somewhat similar to the Council on Marine Resources and Engineering Developments of the 1960's.

Aside from the few departments and agencies mentioned above, other ocean-related activities would need to be collected into a single operating unit with research, management, and enforcement authority.

The combination of research, regulation, and resource management in one agency or department would also facilitate cooperation between Government and private enterprise. The new agency (or department) would be in a better position to respond to industry needs.

Reorganization of civilian activities can take different forms. There are a number of options, such as:

(a) Leaving NOAA within the Commerce Department, but adding to it parts of other departments and agencies with specific ocean-related responsibilities.

(b) Creation of an independent NOAA agency along the lines of NASA. Parts of other departments and agencies with specific ocean-related responsibilities would be added.

(c) A Department of Environment and Oceans as recently called for by Senator Ernest F. Hollings, Chairman of the Senate National Ocean Policy Study. Such a department would be broader in scope than ocean agencies listed before, and this approach would have the advantage of authority, flexibility, and the public visibility of a Cabinet-level department.

One area in which we can learn from the Russians is their understanding of the concept of maritime power. To the Soviets each element of maritime power must interact with the other, and no one element can be allowed to develop without regard for the impact

that development will have on other elements. In the previous chapter we have shown that seapower today is a much broader concept than it has been prior to the Second World War. Today, the oceans are not only important as trade routes and a source of food. In an era of growing scarcity of energy resources and raw materials, man is looking increasingly to the oceans for solutions to his problems. But, the solution to some of his energy and raw material problems has created environmental problems, and perhaps interference with navigation and food gathering. Centralization of civilian ocean activities would have the advantage of taking a comprehensive look at all ocean activities to see to it that ocean resources are utilized to their optimum capacity without undue interference with the environment and other uses of the seas.

Government, however, cannot fulfill the complex task of managing U.S. ocean activities without close cooperation with the nongovernmental sector of society. While the Government, for example, can assist fishermen by creating a 200 nautical mile fisheries zone and managing the living resources within that area, many of the problems related to the stagnation of some of our coastal fisheries are cultural in nature, and are not likely to be positively affected by governmental action.

The necessary improvement of the competitiveness of our merchant marine is another example of an area where Government action is limited. Government action has at least temporarily slowed down the rapid decline of the U.S. merchant marine in the post-World War II era. Infusion of Government funds, made possible by the passage of the Merchant Marine Act of 1970 has increased the volume of goods shipped in U.S. bottoms. It seems, however, that in order to increase the volume of goods shipped in U.S. bottoms significantly, Government subsidy programs are not sufficient. A recent report by the National Academy of Sciences found that reorganization of both management and labor union practices are necessary to improve the position of the U.S. merchant marine.

There are many other areas related to the various uses of the seas where cooperation between government and nongovernment institutions are called for. It seems evident, however, that reorganization of ocean activities leading to further centralization of civilian ocean affairs, in concert with a coordinating and policymaking council attached to the Executive Office, would be a major step in the direction of recognizing the importance of an oceans policy to the United States, and toward the optimization of the uses of the seas.



